



CAMPUS MASTER PLAN

COUNTY OF LOS ANGELES
HARBOR-UCLA MEDICAL CENTER

JUNE 30TH, 2012

THE FUTURE OF HARBOR - UCLA MEDICAL CENTER

prepared by

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An architectural rendering of a modern medical campus plaza. The scene features a large, white, angular building with a flat roof. A series of trees are planted along the base of the building, creating a green wall effect. In the foreground, a wide, paved plaza is populated with diverse people walking and interacting. Some are in business attire, while others are in casual wear. In the background, there are more trees, a small structure with a white screen, and a row of colorful umbrellas. The sky is blue with scattered white clouds.

The main goal of the planning effort is to develop a coherent physical master plan which would enhance the unique, and highly interactive, relationship between the clinical, educational, and research components of the Harbor-UCLA Medical Center Campus

EXECUTIVE SUMMARY

Harbor-UCLA is a tertiary medical center, currently budgeted for 373 beds in 2011/2012 with an average daily census of 329 plus operating more than 70 primary and specialty-care clinics, staffed by more than 4,000 dedicated individuals, and supported by an annual operating budget of \$677 million (fiscal year 2011-2012). The campus is a key component in the County of Los Angeles' 4,000 square-mile healthcare safety net for its 10.3 million residents, many thousands of whom are uninsured or under insured and dependent on the County's Department of Health Services.

Harbor-UCLA has been affiliated with the UCLA School of Medicine since 1951. Today, the medical center is an important training ground with more than 290 full-time faculty physicians - all with a teaching appointment with UCLA's David Geffen School of Medicine -- and 120 part-time faculty physicians, and 360 volunteer faculty physicians.

With residency and fellowship programs in all medical and surgical specialties, and an international reputation as a premier teaching hospital, Harbor-UCLA attracts hundreds of top medical school graduates from across the nation each year. Because many of its graduating Resident Physicians and Fellows stay locally to practice medicine, Harbor-UCLA's training programs are a continual and important source of new medical expertise for Southland communities.

Key to Harbor-UCLA's ability to attract and retain many outstanding, experienced faculty physicians as well as to draw top residency candidates is its partnership with Los Angeles Biomedical Research Institute (LA BioMed) with many faculty who are researchers as well as clinicians.

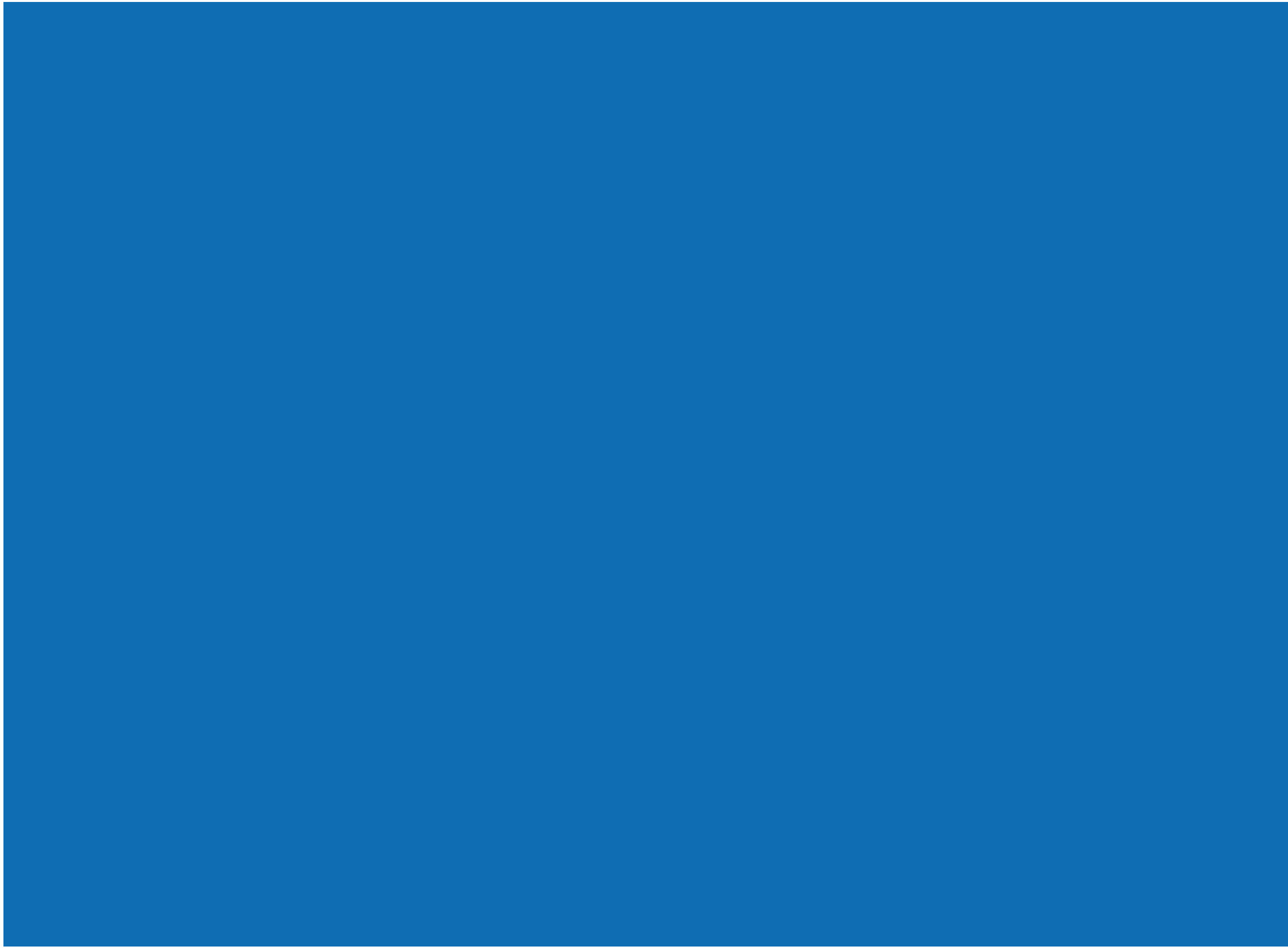
For more than 50 years, Harbor-UCLA has been affiliated with and has conducted a broad range of important medical research with LA BioMed. This collaboration has resulted in the modern cholesterol test, important contributions to treatments for aneurisms, cancer, infectious diseases, pulmonary disorders, and other conditions, as well major clinical discoveries in perinatal, vaccine, and women's care research. Funded research expenditures exceed \$40 million annually for more than 100 projects, making LA BioMed one of the top 20 independent research institutes in the nation.

The research, education, and clinical mission are carried out on campus in facilities, which for the most part, were originally designed between the 1940's to 1960s. Over the years these facilities have become increasingly inefficient to operate and

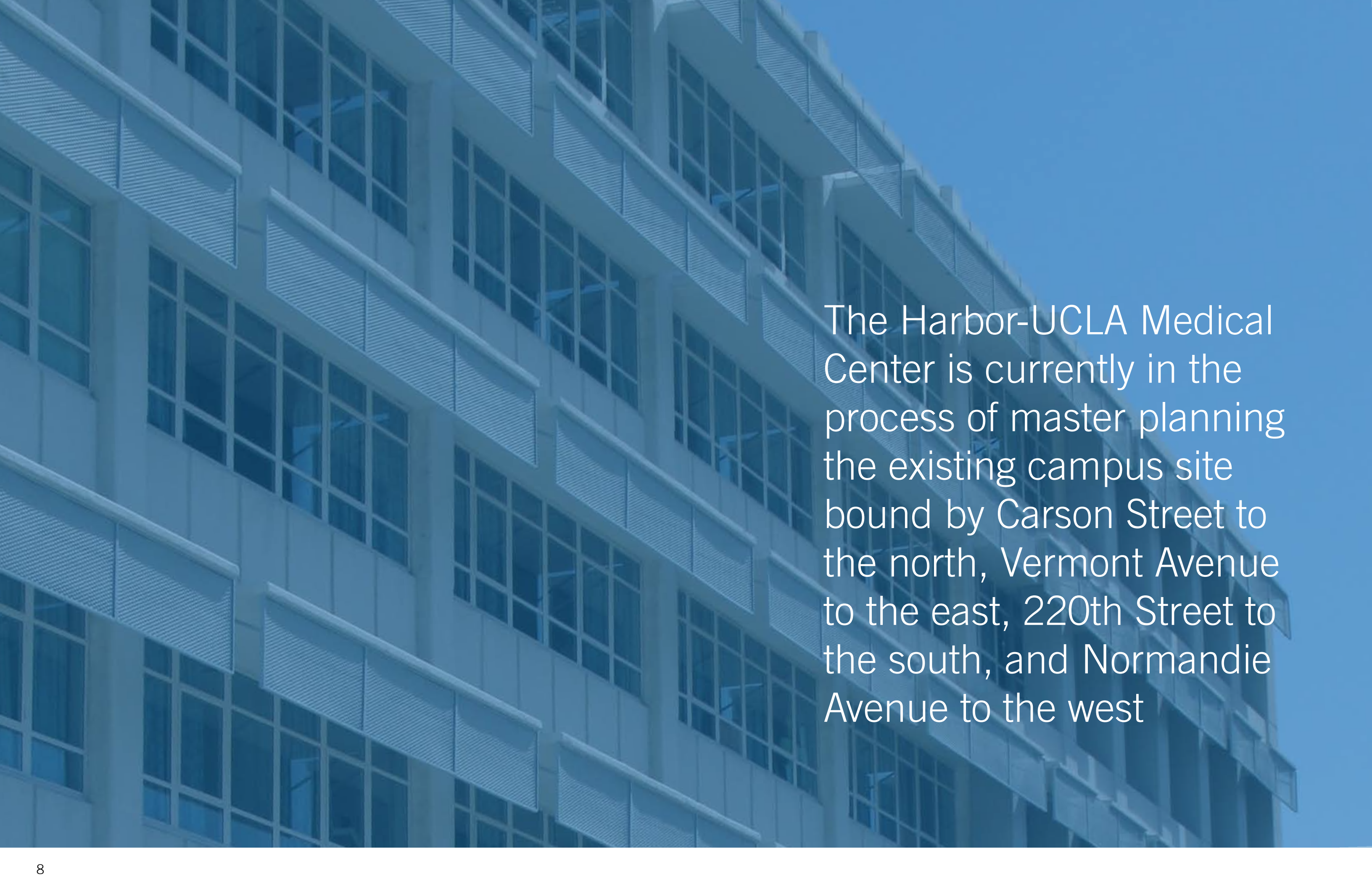
maintain, creating the need for a comprehensive study of the physical planning potential. This imperative was further increased by California's Senate Bill 1953 (SB 1953) which mandates acute care services no longer be provided after January 1, 2030 in buildings built before 1973, impacting the existing Hospital, except for the Primary Care and Diagnostic Center (PCDC) building. The context of healthcare reform with an ever increasing focus on outcomes, performance, and reduced reimbursement also create an additional imperative to change operational models which in turn impacts physical plant requirements.

The main goal of the planning effort is to develop a coherent physical master plan which would enhance the unique, and highly interactive, relationship between the clinical, educational, and research components of the Harbor-UCLA Medical Center Campus. The physical master plans are augmented and supported by a programmatic assessment of Harbor-UCLA intended to validate the existing Harbor-UCLA and MLK Hospital planning initiatives, identify opportunities for future operational improvements, project future patient demand and define future services offered on the campus.

The master plan defines a radically different future campus than exists today. A new Hospital Tower connected to the existing buildings that will remain, will be the main focal point and new center of the campus. Outpatient facilities are consolidated into a sub-campus close to each other, LA BioMed and the New Hospital Tower. New LA BioMed facilities are consolidated into another sub-campus close to the outpatient facilities and the new Hospital Tower. Open plazas and landscaped areas for pedestrian circulation form the core of the campus and join the Hospital, LA BioMed and Outpatient campus. This new open space will enhance the patient, visitor, and staff experience on the campus. Patient and visitor vehicular entrances and parking are realigned off Carson Street and staff vehicular entrances are provided off Vermont Avenue and 220th Street. By re-configuring parking in this way, travel distances, vehicular circulation and wayfinding will be improved. The west side of the campus is reserved for future development. Spatial program for the campus includes core County of Los Angeles healthcare services, and research facilities focused on wellness; and retail/commercial services which support the campus' core mission. The new campus also engages Carson Street and the surrounding community by aligning services utilized by the community towards this major thoroughfare.



01 INTRODUCTION



The Harbor-UCLA Medical Center is currently in the process of master planning the existing campus site bound by Carson Street to the north, Vermont Avenue to the east, 220th Street to the south, and Normandie Avenue to the west

MASTER PLAN CONTEXT / PURPOSE

The Harbor-UCLA Medical Center Campus Master Plan establishes a forward thinking and durable framework for near and long- term campus revitalization intended to guide growth and development of the campus, as well as impact development in the surrounding area. The master plan includes analysis, recommendations, and proposals for the campus' land use, the surrounding community's population, economy, housing, transportation, community facilities, etc. The master plan is based on public input, surveys, planning initiatives, existing development, and physical characteristics, social and economic conditions.

The master plan provided an opportunity to envision a future campus that puts the health of the community first.

The master plan process considered various issues to inform future campus planning:

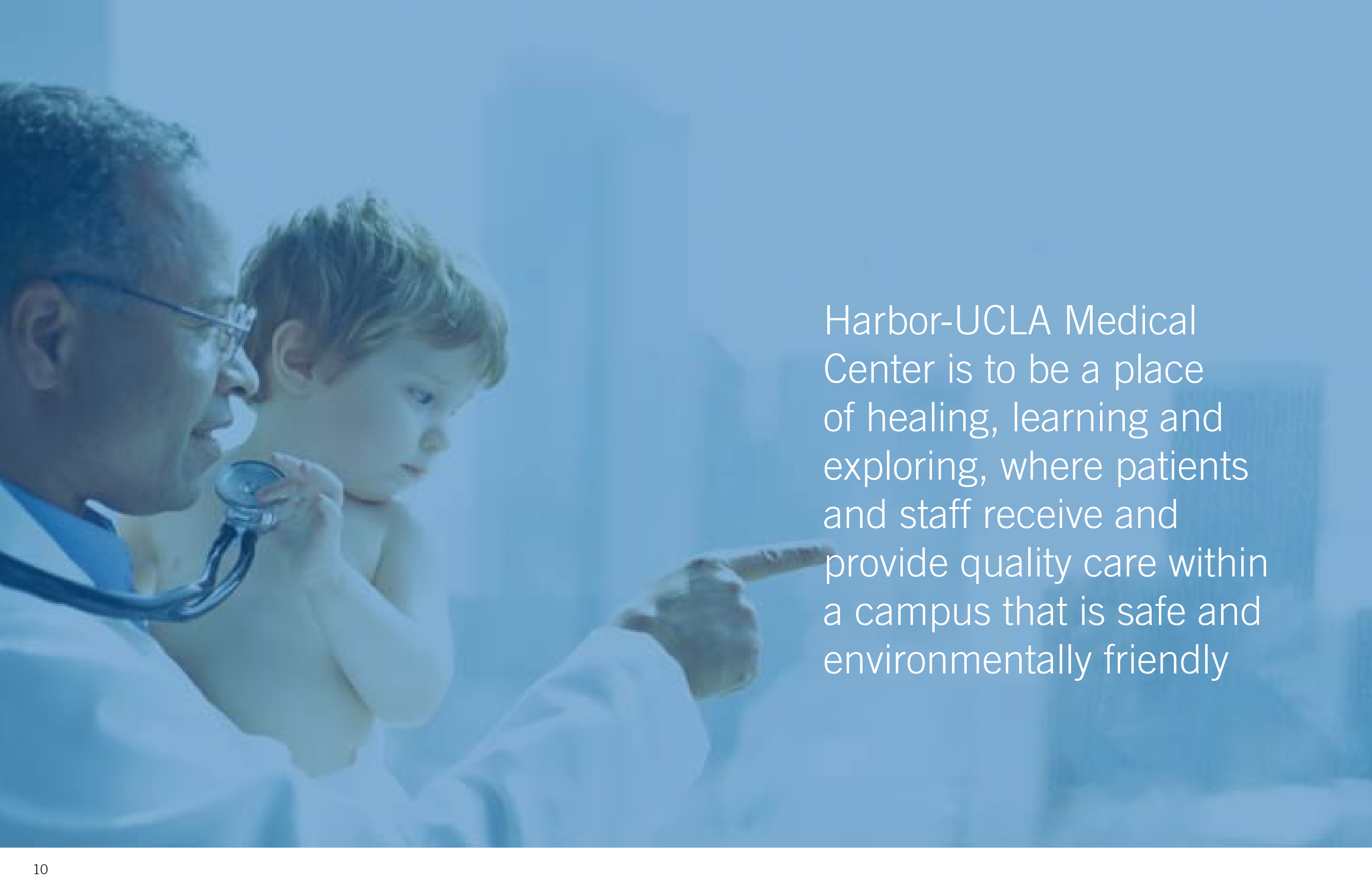
- Patients: Who are our patients now and in the future?
- Program Distribution: Which programs should be offered on the Harbor-UCLA campus?
- Care Models: How will the delivery of healthcare services change in the future?
- Affiliation: What additional affiliations will be needed to optimize value (e.g., FQHC, home care, etc.)?
- LA BioMed: How will LA BioMed's future impact future County and other campus programs?
- Efficiency: How might we treat patients more efficiently and, therefore, be able to care for more patients?
- Wellness: How can we reinforce health maintenance and illness prevention?

Comprehensive strategic, operational, physical and program planning enables reduction of risks and maximization of opportunities to achieve long-term excellence in:

- Pace-setting clinical quality
- Fiscal responsibility and exemplary stewardship
- Attracting the best clinicians and teaming partners
- Efficient quality care delivery: doing more with less
- Robust clinical teaching and research impact
- Catalyzing economic growth and P3 investment
- Community health improvement
- Meeting the needs of the under served

The master plan also considers the quality of the built environment of the new Harbor-UCLA Medical Center:

- Create a friendlier, more easily accessible place for patients
- Enhance the integration of the campus with Carson Street activity
- Enhance the integration of the campus with transit oriented development along Vermont Avenue and Carson Street
- Improve the physical relationships between Harbor-UCLA and LA BioMed to enhance the operational efficiency of the campus



Harbor-UCLA Medical Center is to be a place of healing, learning and exploring, where patients and staff receive and provide quality care within a campus that is safe and environmentally friendly

MASTER PLANNING PRINCIPLES

Harbor-UCLA Medical Center is to be a place of healing, learning and exploring, where patients and staff receive and provide quality care within a campus that is safe and environmentally friendly. A facility which promotes new ways of delivering care, adapts to a changing workforce, interacts with community, and provides services with available resources. Consistent with Harbor-UCLA's Vision Mission Planning Principles which guide the master plan are as follows:

These principles were developed through public outreach, interactions with the County of Los Angeles Second Supervisorial District leadership and County of Los Angeles leadership staff from: Chief Executive Office; Department of Health Services; Department of Mental Health; Harbor-UCLA Medical Center; and Department of Public Works.

- Achieve optimum public utilization of County of Los Angeles controlled land and buildings.
- Redevelop the Harbor-UCLA Medical Center campus to support an integrated healthcare delivery model.
- “First, do no harm” to the environment by developing the campus in ways that do not compromise environmental quality, social equity, or economic opportunity for future generations. Create durable, adaptable green infrastructure and buildings, promote resource-efficient transportation solutions, and seek climate positive outcomes. Establish goals to reduce net greenhouse gas emissions, including: energy, buildings and land use, transportation, water and waste. Accommodate changing sustainable design practices, from current standards to a future vision for a Regenerative Campus.

- Provide for a fundamental reorganization, expansion and integration of outpatient services with the specific goals of being more community based and patient centered, more efficient, and configured to maximize clear wayfinding on campus.
- Catalyze economic growth and public/private development opportunities.
- Update facilities to modern standards.
- Consolidate inpatient and outpatient services to dedicated buildings to optimize the quality of care and operational effectiveness, while reducing administrative, operational and maintenance costs.
- Identify strategies that optimize synergies between LA BioMed and encourage a mixed-use and vibrant campus setting.



VISION

Harbor-UCLA Medical Center...the center of an integrated, regional healthcare delivery system, which excels in patient-centered care, medical education, and research.



MISSION

The mission of Harbor-UCLA Medical Center is to provide high-quality, cost-effective, patient-centered care through leadership in medical practice, education, and research. Services are provided through an integrated healthcare delivery system to residents of Los Angeles County regardless of ability to pay.



VALUES

We are a community that cares about people and their health. Each of us is a leader as well as a team player in our campus community. Community means caring, belonging, trusting and sharing pride in our achievements. All members choose to be active learners, listeners and innovators. Recognition and commitment to excellence are values we cherish. Energy is focused on patient care, education and research.

ACKNOWLEDGEMENTS

The following were instrumental in the preparation of this master plan:

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Thank you also to all who volunteered their time and opinions in stakeholder interviews and presentations. Individuals are listed in the Appendix.

A group of people, including several women and one man, are gathered around a table in a meeting. They are looking at documents and a presentation board. The image is overlaid with a blue tint. The text 'MASTER PLAN PROCESS' is centered in the upper half of the image. To the right of the title is a circular icon with a right-pointing arrow. Below the title are three paragraphs of text. The background shows a man in a suit looking at a presentation board with the words 'SERVICES AND SPACES' and 'AMENITIES' visible. The people in the foreground are looking at documents and talking to each other.

MASTER PLAN PROCESS



Perkins+Will was selected by the Chief Executive Office of the County of Los Angeles, and supported by the Administration of the Harbor-UCLA Medical Center staff to lead the development of a new master plan for Harbor-UCLA Medical Center.

The master plan effort includes consideration of current conditions and future needs of the Harbor-UCLA Medical Center Hospital and Clinics, the LA BioMed Research Foundation, the Medical Foundation, Inc. (MFI), and the Department and Faculty Administration component of the UCLA Teaching Program at the site. We developed a Community Outreach program to reach out to the local community, Community Organizations, and selected Stakeholders to get their thoughts and ideas for their vision of the future for the Harbor-UCLA Medical Center campus.

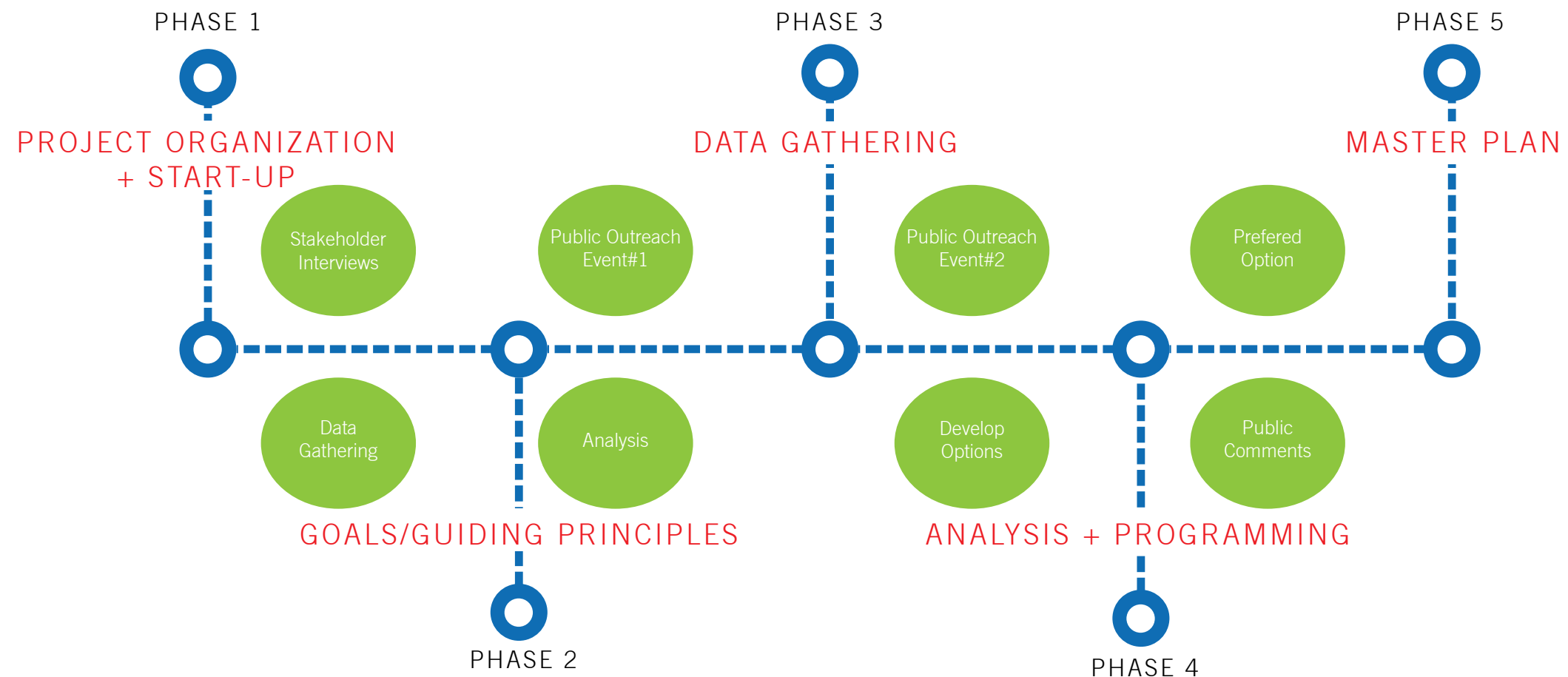
This report summarizes the master plan process conducted by Perkins+Will in association with Davis Langdon, Epsys Inc., Kimley-Horn, Kurt Salmon, Lerch Bates, Vantage Technology inc., Walter P. Moore, Walker Parking, and The Robert Group.

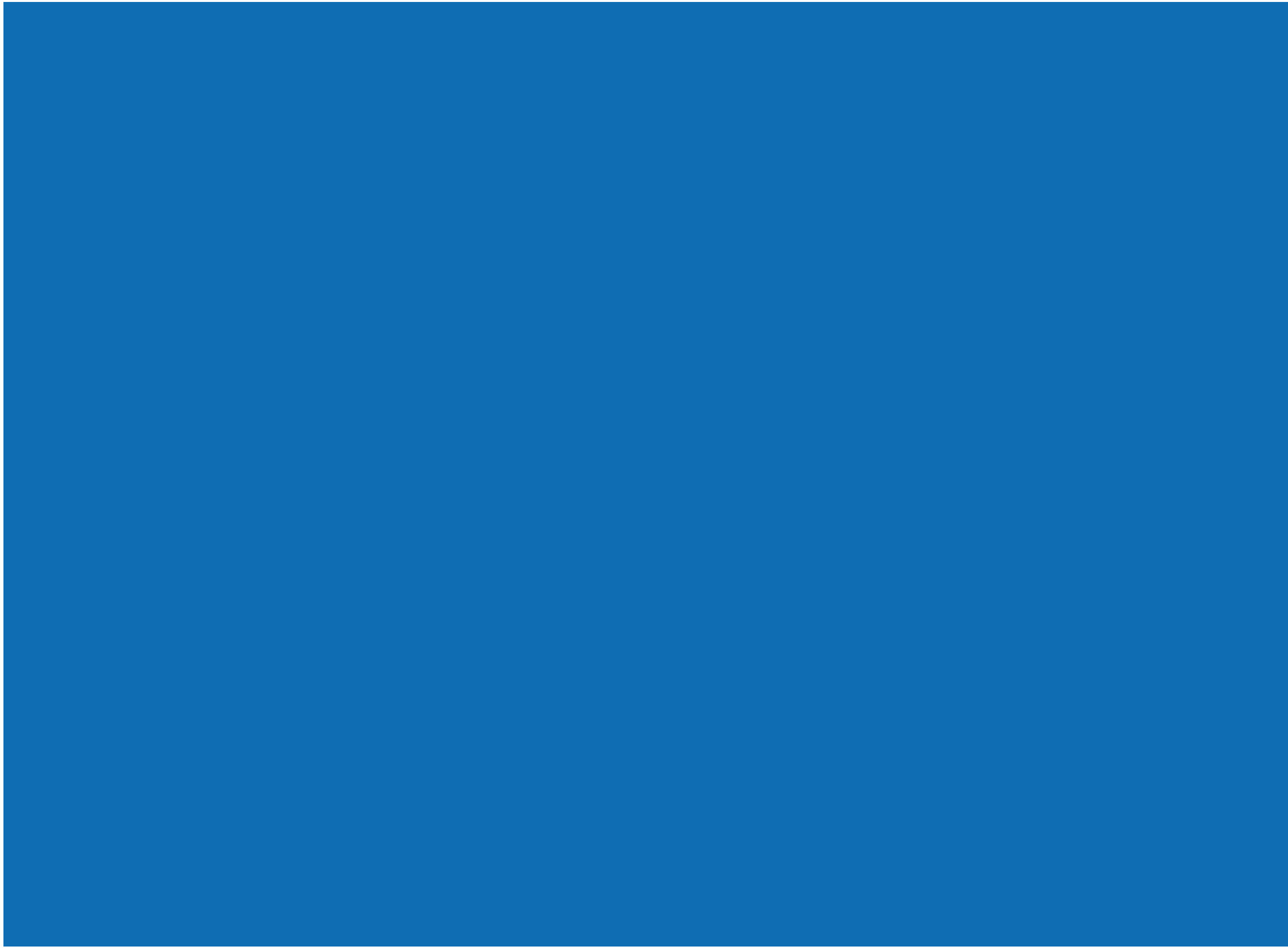
DIAGRAMMING THE MASTER PLAN PROCESS

The master plan process is an opportunity to develop a collective vision for the future development of the Harbor-UCLA Medical Center Campus and to become a catalyst for a positive economic and social impact in the adjacent and greater community that the medical center serves. This process provided an opportunity to bring together the active, but sometimes uninvolved constituency of neighbors, business owners, and medical center patients and visitors.

The master plan process as developed was structured in five separate phases. Phase 1 consisted of defining the overall goals and guiding principles defined and established by the entire project team. Phase 2 was the development of the guiding principles including near-term, short-term and long-term (2030) needs and goals for the medical campus and future development. Phase 3 consisted of data gathering and researching the existing physical, clinical, operational and economic constraints that could inform or impact the future planning. Phase 4 consisted of the analysis of all the information gathered in the previous phase. The master planning phase will be based upon an analysis of the information gathered.

Phase 5 of the master planning process is the actual master plan development and reporting to the project stakeholders.





02 BACKGROUND

An aerial photograph of a city street, likely in Los Angeles, showing a mix of residential and commercial buildings. The image is overlaid with a semi-transparent blue filter. The text is positioned in the upper right quadrant of the image.

The Harbor-UCLA Medical
Center Campus occupies
a 72 acre site in southern
Los Angeles County

REGIONAL CONTEXT

The Harbor-UCLA Medical Center located at 1000 West Carson Street is bound by Carson Street to the north, Vermont Avenue to the east, 220th Street to the south, and Normandie Avenue to the west. The project is located in unincorporated Los Angeles County, with the border for the City of Los Angeles running on the eastern side of Normandie Avenue. The Harbor-UCLA Medical Center Campus occupies a 72-acre site in southern Los Angeles County. The medical campus is easily accessible from several Southern California freeways. The 110 and 405 freeways are accessible from Carson Street on the east of the campus.

The City of Carson is to the east of the campus and the City of Torrance on the west. The campus is near the beach front Cities of Redondo Beach, and Palos Verdes Estates. To the south of the campus is the Port of Los Angeles

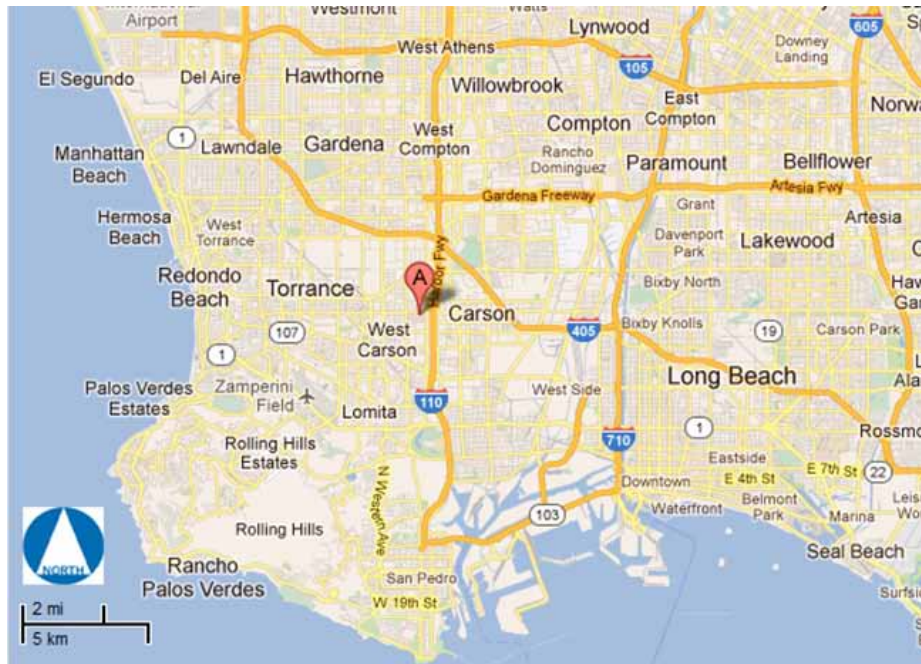


FIG. 01 - Map illustrating the regional context of the Harbor-UCLA Medical Center Campus Master Plan area.



A market assessment was completed in Spring 2011 serving as part of the planning foundation for Harbor-UCLA's long-term campus planning effort

MARKET ASSESSMENT

A market assessment was completed in Spring 2011, serving as part of the planning foundation for Harbor-UCLA's long-term campus planning effort. The County of Los Angeles anticipates significant restructuring of the existing campus, consistent with a 2030 planning horizon, and asked the planning team to evaluate the Harbor-UCLA market as well as Harbor-UCLA's place in the market to ensure essential healthcare services continue to be provided to residents living in the South Bay Region.

Following the collection of internal and external data, site tours of the Harbor-UCLA campus, and interviews with key executive and physician leaders, a Market Assessment was completed that focused on the following areas:

- Current State – A thorough analysis of key market characteristics and drivers to identify trends that will impact Harbor-UCLA
- Future State – An evaluation of future market considerations that Harbor-UCLA will need to anticipate and prepare for in order to remain successful
- Future Practice of Medicine – Clinical care models and operational principles that will be incorporated into the campus planning effort

Key findings and preliminary considerations were developed based on this assessment and are included in the following pages:

CURRENT STATE

An assessment of the current state included a study of patient volume coming to Harbor-UCLA, how patients have historically been reimbursed, overall health of those living in the service area, Harbor-UCLA's clinical service offerings, and its relationship with other healthcare entities. Preliminary conclusions based on the Current State Assessment are as follows:

Patient Origin - Harbor-UCLA plays a critical role in meeting the healthcare needs of people in the greater South Bay Region, particularly those living within 15 miles of the Harbor-UCLA campus

Population Health - Greater focus on health and wellness is needed in the community as rates of obesity and diabetes continue to increase, which will result in preventable future demand for healthcare services

Care Coordination - Harbor-UCLA's continuum of patient care is limited, making it difficult to provide coordinated care for patients in the community; Harbor-UCLA has a significant opportunity to improve its coordination efforts with its health centers as well as other federally qualified health centers in the region

Positioning - Harbor-UCLA is positioned to be the tertiary medical center in the South Bay Region with its current breadth of services, residency programs, existing infrastructure, and MLK serving as a sophisticated community hospital

FUTURE STATE

The planning team then studied how Harbor-UCLA's market will likely evolve over the next 10 to 20 years and what Harbor-UCLA must do to prepare for this change. Service area population and aging estimates were studied, expected changes in physician and nursing supply / demand were assessed, and reimbursement / funding changes were considered resulting in the following key conclusions:

Population Growth and Aging - Harbor-UCLA will see an increasing demand for healthcare services in the future due to population growth and aging and already low healthcare utilization rates today

Workforce Changes - Future physician and nursing shortages in The County of Los Angeles will compel Harbor-UCLA to rethink how it provides care in the community moving forward

Funding - Harbor-UCLA will likely benefit from the expansion of Medicaid beneficiaries resulting from Health Reform, however, this reimbursement stream will continue to pay below cost, and other reimbursement streams will see declines in growth rates (e.g., Medicare)

Harbor-UCLA Response - Harbor-UCLA will need to (1) enhance its operating performance – near-term and long-term, (2) define new care models, (3) lead in activities to better manage the health of the residents of the County of Los Angeles, and (4) grow intelligently in order to remain a viable and successful safety net provider

FUTURE PRACTICE OF MEDICINE

The planning team, having an opportunity to lead the majority of campus planning engagements for North America's leading academic medical centers, has gained valuable insights and deep expertise in best practices, which will be incorporated in Harbor-UCLA's campus planning effort. For this section of the report, key planning principles have been outlined for all components of Harbor-UCLA's campus, including the following areas:

On-Campus Ambulatory Care - Emphasis on patient-centered, coordinated care that is consolidated on campus and connected throughout all clinics in the community.

Ideal Patient Experience® - Enhancing the care experience from the patient's perspective and identifying specific metrics to inform the ongoing management process of patient care

Inpatient Services - Designing new facilities with flexibility in order to accommodate unpredictable changes in medicine and technology over the lifespan of the building

Medical Education - Accommodate space that supports Harbor-UCLA's teaching mission, including sufficient conference and teaching space, access to Electronic Health Records (EHRs), and patient simulation

Information Technology - Plan future building technology infrastructure in a manner that serves as a foundation for further IT advances; this infrastructure will emphasize flexibility, scalability and adaptability

Research - Support translational and clinical research by developing appropriate space for clinical researchers in their hospital related activities and ensuring connectivity remains between clinical, teaching, and research activities

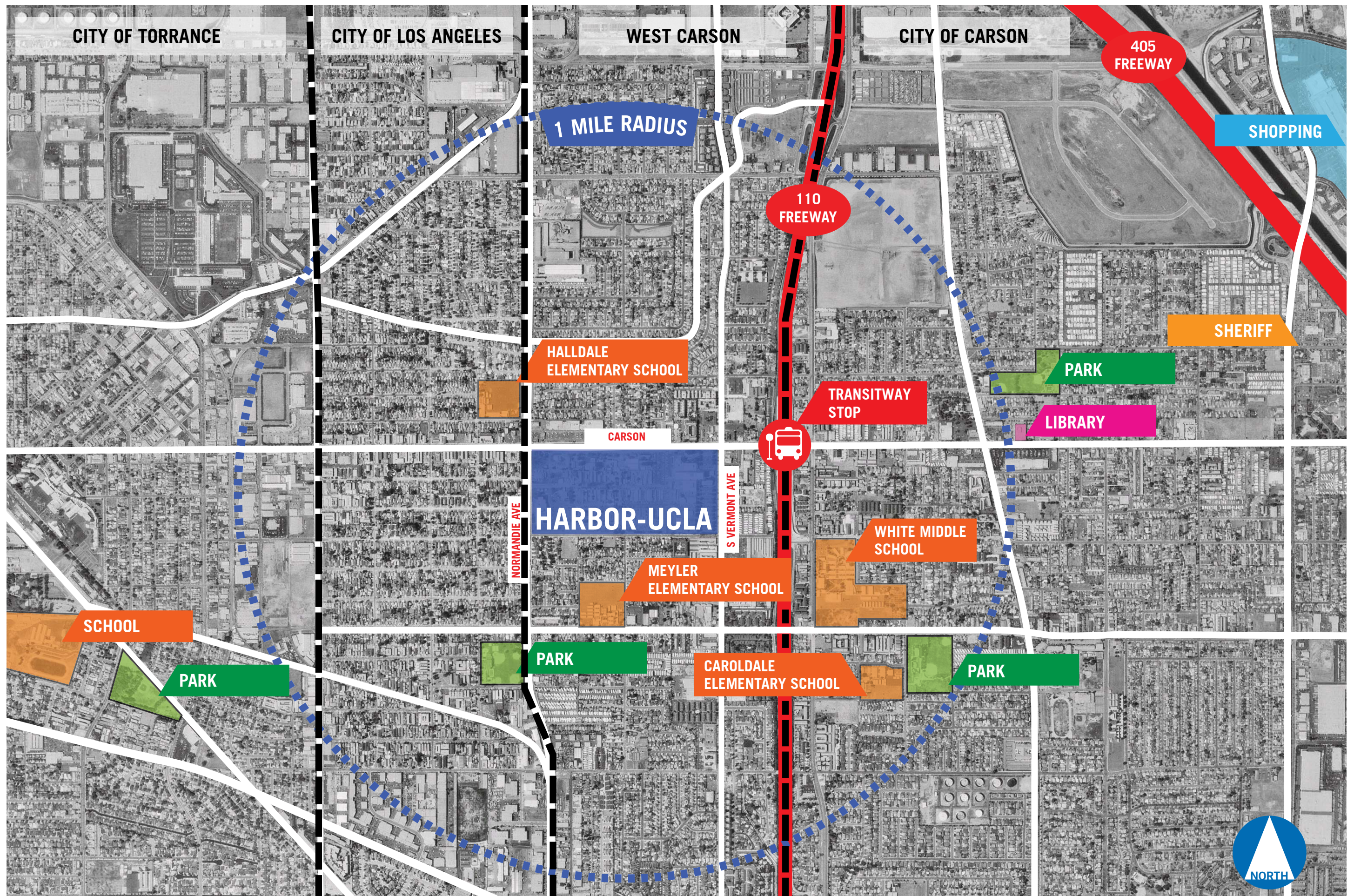
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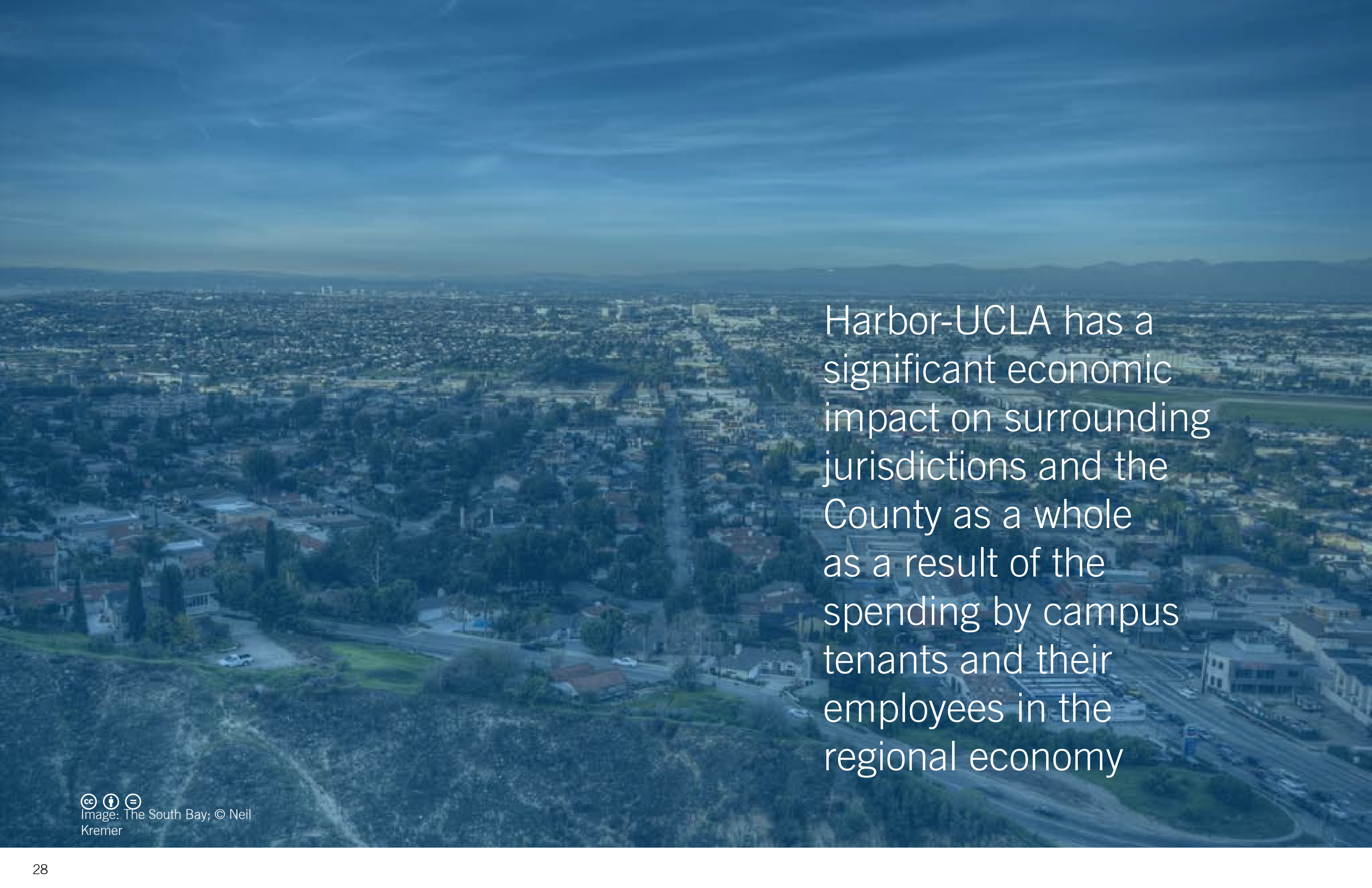
CONTEXT AND COMMUNITY



The following represents the local context and community development that were reviewed during the Harbor-UCLA Medical Center Campus Master Plan analysis effort.

- The Harbor-UCLA Medical Center Campus is within 1 mile of several jurisdictions including the County of Los Angeles, City of Torrance, City of Los Angeles, and the City of Carson.
- The overriding land use throughout the surrounding area is residential with small and medium scale commercial developments to the north and east of the project site.
- Some of the commercial properties to the north of the campus show signs of neglect.
- Mixed scale housing directly adjoins the south, east and west boundaries of the site. Along 220th Street there are single family homes with multi-family dwellings to the east.
- Parks and open space lie within one mile of the campus, but are too remote for the campus community to utilize them regularly during a typical work day.
- There is a potential connection to the City of Carson as the city develops the Carson Street Master Plan just east of the Harbor-UCLA Medical Center site.
- A connection is possible to the Harbor Transitway bus line in the 110 Freeway, providing an interface with regional public transportation.



An aerial photograph of a city at dusk or dawn. The sky is a deep blue with some light clouds. The city below is densely packed with buildings, mostly residential, with some larger commercial buildings visible. A major highway with multiple lanes is visible in the lower right corner. The overall tone is blue and serene.

Harbor-UCLA has a significant economic impact on surrounding jurisdictions and the County as a whole as a result of the spending by campus tenants and their employees in the regional economy

ECONOMIC CONTEXT

With more than 3.8 million jobs, the County of Los Angeles is one of the top employment centers in the United States and home to nearly 30 percent of the jobs in California. The County contains key economic clusters in healthcare, entertainment, trade and logistics, and a variety of high-tech fields. Employment concentrations in these clusters significantly exceed the national averages. The healthcare sector alone accounts for about nine percent of the County's employment and is one of the few sectors that has experienced steady growth over the last four years, weathering the "Great Recession" that commenced in 2008 (the County's current unemployment rate of slightly over 12 percent compares to 7.5 percent in 2008 and is just below 5 percent in 2006).

The Local Study Area economy parallels the County of Los Angeles as a whole, but exhibits relatively high employment concentrations in the manufacturing, trade, and logistics sectors. For example, almost one in five Local Study Area jobs is in the manufacturing sector. This economic orientation reflects the distinctive characteristics of the location, adjacent to major transportation corridors and logistics facilities (e.g., Port of Los Angeles), and the significant labor force supported by large and diverse residential communities contained within and nearby the Local Study Area.

The cities of Torrance and Carson are both home to a number of relatively large employers with major manufacturing and logistics facilities in the automobile, technology, aerospace/defense, and energy sectors. However, it is worth noting that the combined employment at the Harbor-UCLA campus of over 5,000 direct jobs makes it far and away the largest employer in the Local Study Area.

Although the Harbor-UCLA campus is a key job generator, many of the employment nodes in the Local Study Area are located elsewhere. In particular, the greatest employment concentrations are located in Torrance between State Route 107 (Hawthorne Boulevard) and State Route 213 (Western Avenue), as shown in Figure 1.

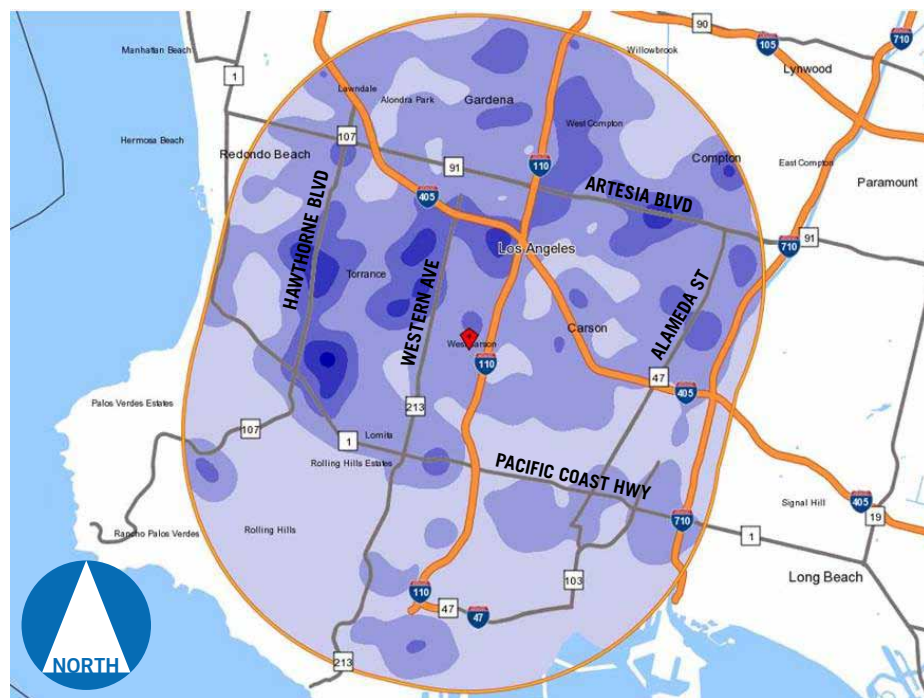


Figure 1 - Employment Concentrations near Harbor-UCLA

Legend: Employment Concentration
High Low



The South Bay offers a solid industrial base, strong transportation and other infrastructure, diverse workforce and residential communities that will support a wide range of healthcare related activities and sectors at Harbor-UCLA



Image: The South Bay; ©Neil Kremer

ECONOMIC IMPACTS

PURPOSE AND SCOPE

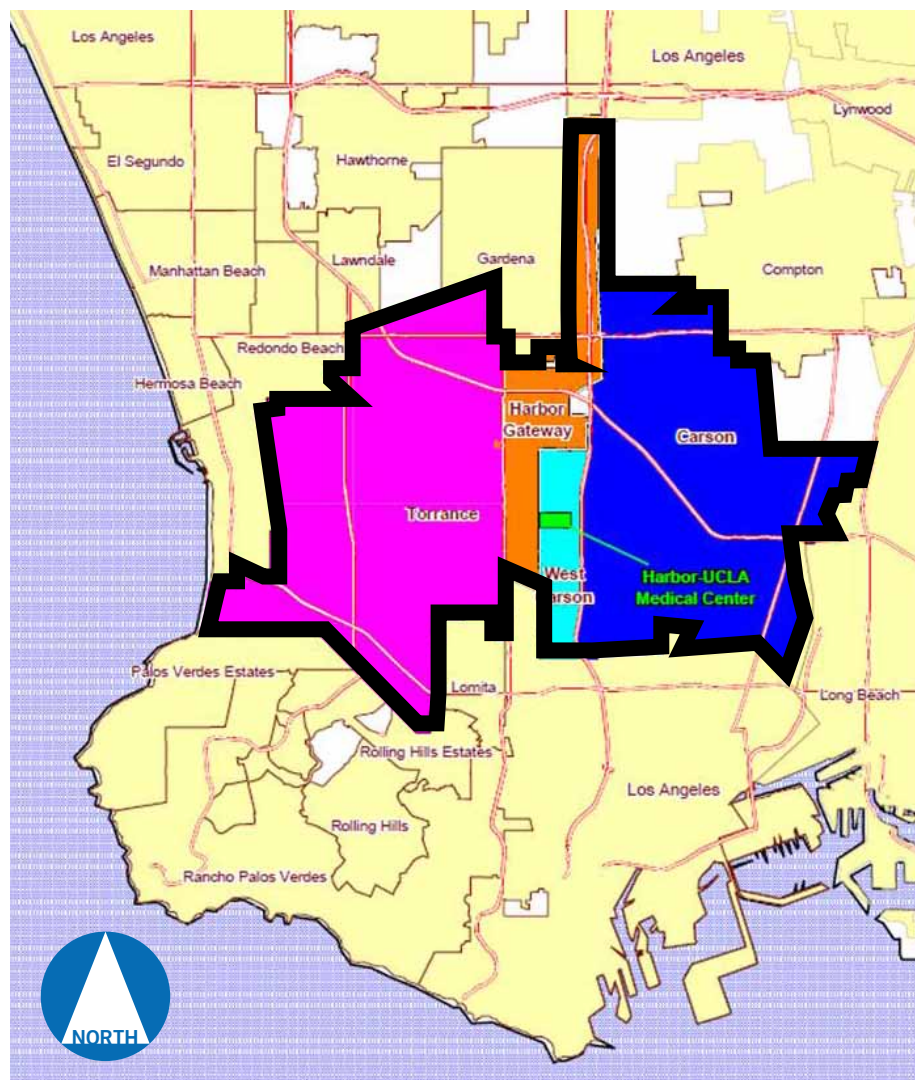
This section evaluates the economic and fiscal impacts of Harbor-UCLA on local and regional communities. The analysis endeavors to inform the master plan process and to provide a “baseline” from which the economic and fiscal implications of various master plan alternatives may be evaluated. This section includes the following primary components of analysis:

1. Regional Socioeconomic Context documents the existing demographic and economic conditions within the local and regional area as relevant to the Harbor-UCLA campus.
2. Primary Economic Impact Analysis estimates the primary economic impacts from Harbor-UCLA campus that are derived from the spending of the hospital, other campus tenants, and associated staff members.
3. Secondary Economic Impact Analysis describes Harbor-UCLA’s secondary economic impacts, focusing on its relationship to the biomedical industry and local real estate market.
4. Fiscal Impact Analysis evaluates the impacts of the Harbor-UCLA campus on the General Fund budgets of neighboring jurisdictions (i.e., the cities of Los Angeles, Carson, and Torrance).

PROGRAM AND GEOGRAPHIC FOCUS

The Harbor-UCLA campus includes the County hospital and support facilities as well as important tenants such as the Los Angeles Biomedical Research Institute (LA BioMed), the Medical Foundation, Inc. (MFI), the Children’s Institute, and others. Although the campus itself is located in a relatively small unincorporated enclave of the County of Los Angeles, the programs, services, and activities of its tenants extend beyond these boundaries and impact neighboring jurisdictions and the broader Los Angeles region. Consequently, this analysis evaluates the role of the Harbor-UCLA hospital and other tenants located on campus within several distinct, yet inter-related geographic areas. .

- West Carson: The Harbor-UCLA campus is located within the community of West Carson, a Census Designated Place (CDP) located in unincorporated County of Los Angeles. This community is relatively small (2.26 square miles) and surrounded on all sides by relatively dense, urbanized, and incorporated cities.
- Local Study Area: Given Harbor-UCLA’s position immediately adjacent to several neighboring communities, this study has defined a “Local Study Area” that reflects the primary “sphere of influence” from the perspective of economic and fiscal impacts. The Local Study Area includes the cities of Torrance and Carson, a portion of the City of Los Angeles referred to as the Harbor Gateway Community, and West Carson.
- County of Los Angeles: Since Harbor-UCLA’s position within the County of Los Angeles is critical to its function and success and because the facility is managed by the County of Los Angeles Department of Health Services, the County as a whole



Above: Local Study Area includes the cities of Torrance, Carson, parts of Los Angeles, and un-incorporated County of Los Angeles

As the largest employer in the Local Study Area, Harbor-UCLA has a significant economic impact on surrounding jurisdictions and the County as a whole as a result of the spending by campus tenants and their employees in the regional economy.

is considered important to the analysis.

KEY FINDINGS

The key findings from this economic and fiscal analysis are summarized below.

The Harbor-UCLA campus is strategically situated within a robust and diverse regional economy which, although still recovering from the so-called “great recession”, maintains long-term assets and growth prospects that if appropriately leveraged could significantly contribute to the success of the master plan. The so-called South Bay, in particular, offers a solid industrial base, strong transportation and other infrastructure, diverse workforce and residential communities that will support a wide range of healthcare related activities and sectors at Harbor-UCLA. The cities of Torrance and Carson, for example, are home to relatively large employers with major manufacturing and logistics facilities in the automobile, technology, aerospace/defense, and healthcare. In addition, the South Bay is home to some of the most exclusive communities in the LA region, (most clustered along the coast), as well as a number of relatively affordable areas further inland.

As the largest employer in the Local Study Area, Harbor-UCLA has a significant economic impact on surrounding jurisdictions and the County as a whole as a result of the spending by campus tenants and their employees in the regional economy. Specifically, combined the Harbor-UCLA tenants spend about \$307 million on goods and services, about 85 percent of which is captured in the County, and \$451 million on wages and salaries. This activity generates an estimated 5,500 direct and 8,700 indirect and induced jobs in the County (a total of about 14,200 jobs). If 100 percent of the spending by Harbor-UCLA tenants were captured locally, its economic impact in the County would increase by about 2,200 additional jobs.

Los Angeles has a well-developed biomedical sector, sustained by a variety of high-profile companies, research institutions, and other public and nonprofit entities (including Harbor-UCLA tenants), that support the field in a variety of ways. Overall, the County had about 45,000 biomedical jobs in 2009, representing about 26 percent of all biomedical jobs in California, a State consistently ranked number one in the United States for

biomedical and biotechnology activity. The County’s biomedical sector has exhibited relatively fast growth rates over the last decade, proving to be more resilient than other high tech sectors and the economy as a whole even during the recent downturn, underscoring its importance in sustaining the regions long-term competitiveness.

The Local Study Area has a sizable biomedical sector with about 28 separate firms, ranging from large and established bio-medical companies such as Physical Optics Corp., and PolyPeptide Laboratories to a variety of smaller firms. LA BioMed, the largest tenant on the Harbor-UCLA campus behind the hospital itself, is often cited as one of the critical ingredients to creating the type of environment, synergies, and industry connections that have been critical to the formation of biomedical clusters elsewhere. Indeed, LA BioMed attracts significant research funding and is responsible for a variety of medical accomplishment, as reflected by numerous patents, license agreements, and at least five spin-off firms. However, similar to the biomedical sector in the LA region as a whole, the Local Study Area does not appear to have a high profile reputation or identifiable nucleus of activity in the biomedical industry.

With the presence of LA BioMed and other prominent health-related tenants along with a large and well-established hospital, the Harbor-UCLA campus possesses many of the constituent elements needed to foster the growth of a biomedical cluster. However, to date this combination of assets has resulted in relatively modest value capture in terms of the emergence of a strong, local hub or cluster of biomedical activity. This analysis identified only three private sector establishment with operations in the Local Study Area and a direct connection to the Harbor-UCLA campus (NovaDigm Therapeutics and Emmaus Medical, Inc., both LA BioMed “spin-offs, and Insight Health Corp., a major Harbor-UCLA vendor). Consequently, the master plan effort could seek to better leverage the Harbor-UCLA assets and improve the local “value capture” from its programs and activities.

...the master plan process could seek to further leverage potential linkages with surrounding neighborhoods.

The existing impact of the Harbor-UCLA campus on the local real estate market appears to be focused on immediately adjacent commercial centers. Although this analysis identified about 15 healthcare-related tenants in the commercial centers across the street, (including 3 pharmacies), a larger health-care cluster of the type that often emerges adjacent to major hospitals has not developed significantly beyond this immediate area. Given the potential for hospitals to generate demand for retail, office, and even residential uses (e.g., from both patients seeking complimentary services as well as healthcare tenants and employees), the master plan process could seek to further leverage potential linkages with surrounding neighborhoods.

The Harbor-UCLA campus appears to have a minimal fiscal impact on the General Fund budgets of the incorporated cities located nearby. This is because the bulk of tax revenues and public service costs generated by Harbor-UCLA appear to be captured on campus or in West Carson and thus accrue to the County rather than neighboring jurisdictions.

EXISTING CAMPUS



The 72-acre site of the Harbor-UCLA Medical Center Campus is located in unincorporated County of Los Angeles designated as West Carson. The site is relatively flat with a slight grade change along the length of Carson Street along the north edge of the campus. The major development was as a military installation comprised of wooden barracks that were designed for seven years of use. The barracks were arranged along an east to west network of internal campus roadway system. Development since the County purchased the property from the Federal Government for use as a County Hospital has followed the major grid axis on the site.

The following represents the issues that were reviewed during the Harbor-UCLA Medical Center Campus Master Plan analysis effort.

- Currently, LA BioMed facilities take up the largest portion of campus land area due to their low-density buildings. The majority of the County of Los Angeles healthcare functions are located on the eastern half of the site. Large tenants such as the Medical Foundation Inc. Building, Children's Institute International, and Imaging Center are clustered on the western edge of the campus.
- There is no coherent design aesthetic that ties the campus buildings together as a campus. Instead the site is characterized by a mix of different styles, materials and finishes.
- Much of the site is organized in small low-rise modular buildings that spread the campus functions over most of the available land, making the site relatively low density.
- Much of the internal road system on the site does not include sidewalks that would allow pedestrians to safely share roadways with vehicles.
- Landscaping is sparse and mostly consists of turf that is costly to maintain and offers little in the way of amenities for the campus users and visitors.
- Parking is scattered throughout the site mostly in remote lots and on internal streets making wayfinding for visitors new to the site especially difficult. Much of the circulation from parking to destination is confusing and meanders in and out of buildings.

TENANTS



The largest tenant on the Harbor-UCLA Medical Campus is LA BioMed. They have constructed four buildings on the campus and have negotiated a new ground lease for a fifth structure. LA BioMed also leases some of the existing military barracks for use as research facilities and logistical support.

The Harbor-UCLA Medical Foundation, Inc. (MFI) was founded in 1963 as a nonprofit organization, whose mission is to generate revenue from patient care activities for enrichment of the clinical, research and educational environment at Harbor-UCLA Medical Center. In October, 1989, MFI opened the 45,000-square-foot Harbor-UCLA Professional Building.

The Harbor-UCLA Diagnostic Imaging Center was dedicated on October 3, 1987. This joint venture between Los Angeles County and International Imaging, Inc., made imaging services (including computed tomography, mammography, ultrasound and noninvasive vascular imaging) available to inpatients and outpatients.



LEGEND

- LA BIOMED
- LA COUNTY
- IMAGING CENTER

- CHILDREN'S INSTITUTE INTERNATIONAL
- MFI PROFESSIONAL BUILDING

EXISTING TENANTS PLAN

- LABIOMED SITE BOUNDARY
- PROPERTY LINE



CAMPUS DEVELOPMENT HISTORY



Campus circa 1944 - Photo LA BioMed



Campus circa 1970 - Photo LA BioMed

The Harbor-UCLA Medical Center Campus was originally planned as a medical facility that opened on the site in 1943 as the U.S. Army's Port of Embarkation Hospital. This facility was a receiving point for the wounded that returned from the Pacific theater during World War II. Situated on a tract of 72 acres (0.32 km²), it had an administration building and a large number of barracks wards arranged under a cottage system.

In February 1946, the County purchased the facility from the Federal Government in order to decentralize the activities of the County of Los Angeles General Hospital, one of the largest institutions of its kind in the world, and founded a branch hospital to serve the Harbor and Long Beach.

The biggest change to Harbor-UCLA Medical Center Campus during the 1960s and 1970s was construction of the 450,000 square-foot Unit 1, what is now the “main” hospital. The original Army barracks, erected in 1943, were built to last only seven years. Sixty-Eight years later one third of the barracks are still in current use on the campus. The barracks are used as research facilities by LA BioMed, outpatient clinics, and other uses by the County of Los Angeles Public Works and other County agencies.

There is currently a new renovation to the main hospital in progress. The new work is the Surgery and Emergency Room Replacement Project. The project will increase the size of the existing emergency room from 25,000 square feet with 42 emergency treatment bays to about 75,000 square feet with 80 emergency treatment bays. The project also adds 190,000 sq. ft. of new hospital facilities housing 16 surgery suites, adult and pediatric triage and a new entrance, lobby and waiting area. Other features include a new heliport, and a new 544 vehicle parking structure that is already in use on the campus.



LEGEND

CAMPUS DEVELOPMENT HISTORY PLAN

- | | | | |
|---|---|--|---|
| TEMPORARY / MODULAR | 1960-1970 | 2000-PRESENT | LABIOMED SITE BOUNDARY |
| 1940-1950 | 1980-1990 | | PROPERTY LINE |



Pioneering research in many fields such as reproductive endocrinology, genetics, infectious diseases, trauma and respiratory medicine has brought worldwide attention to Harbor-UCLA Medical Center Campus

CAMPUS ACCOMPLISHMENTS

Pioneering research in many fields such as reproductive endocrinology, genetics, infectious diseases, trauma and respiratory medicine has brought worldwide attention to Harbor-UCLA Medical Center Campus. Among the major milestones at Harbor-UCLA are:

- The world's first ovum transfer program, led by Dr. John Buster, to help infertile couples. In 1984, we were the first institution in the world to achieve successful pregnancies using the technique of ovum transfer.
- The discovery by A.F. Parlow, PhD of the molecular structure of the human follicle stimulating hormone (FSH) and luteinizing hormone. Dr. Parlow also developed an antisera which made possible neonatal screening for hypothyroidism, a common cause of mental retardation. The Parlow Pituitary Hormone and Antisera Laboratory produces highly purified pituitary components which are used in research and therapy around the world. One of the hormones produced, human growth hormone, is used to prevent severe growth retardation in thousands of children around the world.
- Internationally renowned genetics research to help treat and prevent short stature, lead by Dr. David Rimoin. He was responsible for early work on disorders of growth hormone metabolism, for expanding the knowledge of dwarfism and developing the \$2.2 million Skeletal Dysplasia Center at Harbor-UCLA.
- Dr. John Michael Criley's cardiac research into improved cardiac resuscitation techniques and better training of emergency paramedics, leading to the country's first hospital-based paramedic training program.
- A major discovery in defining the basic biochemical defect in a skin disease, known as x-linked ichthyosis. Dr. Larry Shapiro's discovery that this was a hereditary disease was a significant breakthrough and led to improved treatment strategies.
- Dr. Michael Kaback's advances in developing and improving screening for Tay-Sachs disease, an inherited, fatal disorder. Harbor-UCLA has become the headquarters for the California and international screening programs for the disease.
- Definitive studies of lung surfactant have resulted in saving the lives of thousands of premature infants who would have died because of immature lungs.
- The establishment of the UCLA Center for Vaccine Research. Work at the center has contributed to the licensure of several new vaccines and to the establishment of new national recommendations for childhood immunizations. These new vaccines have protected millions of newborns, children and adults from diseases such as meningitis, whooping cough and pneumonia.
- The development of scintimammography to detect breast cancer without invasive biopsies, is one of the many imaging procedures developed at Harbor-UCLA.
- A detachable balloon catheter, an artificial elbow, and an implant for use in maxillofacial surgery, are among the many devices developed here.
- The receipt of a \$1 million grant from the Robert Wood Johnson Foundation and Pew Charitable Trust to redesign how patient care is delivered. Harbor-UCLA was one of 20 hospitals nationwide -- and the only one on the west coast -- to be awarded the grant. As a result, culture shifts occurred which emphasize leadership, community and the development of interdisciplinary collaboration. The grant also provided seed money and resources to assist with individual and group development.



Dr. Christos Emmanouilides MD at the Harbor-UCLA Medical Center Pediatrics department. Photo - Harbor-UCLA Pediatrics

- Being selected as one of 40 sites nationwide to conduct a landmark research study on diseases affecting women. The Women's Health Initiative (WHI), a \$625 million, 15-year project, is the first study to examine the health of a very large number of women over a long period of time.
- The involvement of family members in the care of patients in the ICUs by developing educational materials in English and Spanish. The program was developed by Marissa Camanga-Reyes, RN, MN, CCRN.
- Improved pain management in infants and children at Harbor-UCLA which was the result of research done by Deon Hall, RN and the pediatric ward nurses.

Other research programs which have achieved international acclaim in the past 50 years include: Dr. Dana Street's reconstructive surgery on thalidomide babies to reconstruct their deformities to allow more normal functioning; the \$3 million NASA contract to develop a urinary system for space suits; hyperbaric chamber research; landmark respiratory disease and exercise studies in Dr. Karl Wasserman's computerized exercise laboratory; and Dr. Ronald Swerdloff's research into male contraceptive methods.

LA BIOMED INNOVATIONS

1960s

Institute scientists achieved successful fertilization through artificial implantation of the ovum, a breakthrough that would lead to the world's first ovum transfer birth some 20 years later. The Institute's investigators created the paramedic model for emergency care that is now a life-saving standard nationwide and identified the genetic basis for the skin disease, x-linked ichthyosis.

1970s

The institute's developmental biology research team discovered the key to stimulating human growth. Other teams of Institute investigators pioneered diagnostic tests that remain the standard today, including the modern cholesterol test. They created a testing and outreach program that has virtually eliminated new cases of Tay-Sachs disease in high-risk

populations. They also developed a thyroid deficiency test for infants now used in most of the industrialized world to help prevent irreversible developmental disabilities. In addition, the Institute patented an implant that helped surgeons reconstruct severely injured jaws.

1980s

In the 1980s, the institute founded a Perinatal Clinical Research Center, one of eight in the United States. Institute investigators helped develop refined synthetic surfactants that have saved the lives of thousands of premature babies, and they evaluated vaccines for influenza, herpes simplex and much more. They also performed the first ovum transfer, laying the groundwork for a procedure that's resulted in more than 47,000 births to infertile couples in the U.S. alone.

1990s

Institute advances included the use of non-invasive techniques for detecting breast cancer, development an inexpensive treatment for eye diseases that's saved the sight of thousands of children in underdeveloped nations, the use of antiviral medications to treat HIV infections, stent technology to treat devastating abdominal aneurysms and an enzyme replacement therapy to help victims of a devastating genetic disorder, Hurler-Scheie disease. The Institute's scientists also played key roles in the development of innovative approaches to prenatal care which have virtually eliminated in this country maternal-fetal transmission of the virus which causes AIDS.

2000 & beyond

Institute investigators developed new rehabilitation strategies for millions of sufferers of Chronic Obstructive Pulmonary Disease (COPD) and other disorders. The Institute spawned four new biotechnology startups, which are already generating \$6 million in economic activity in the region.

EXISTING SITE PHOTOS



Main Hospital Entrance



Typical WWII barrack structure



Modular building MFI offices and clinic



Typical WWII barrack structure



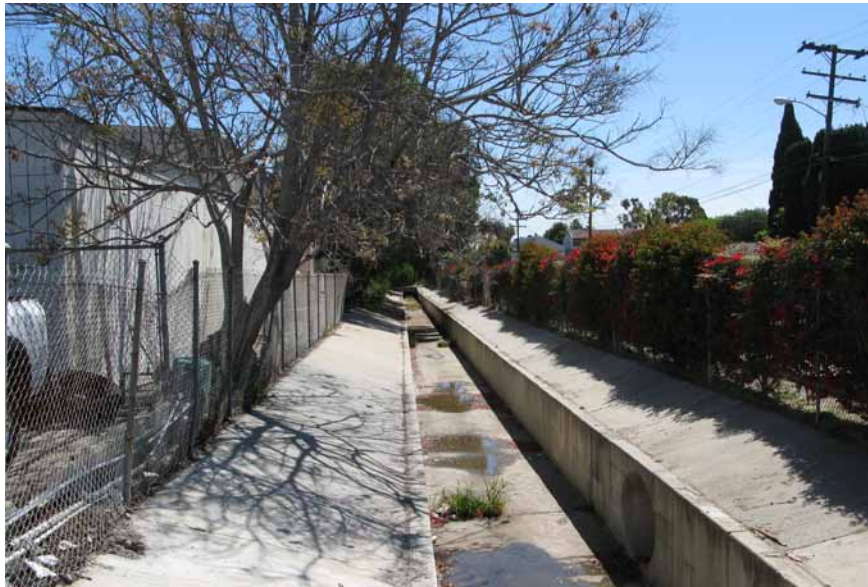
Canopy connecting modular buildings



Campus mechanical equipment



B-3 Annex - WWII Buildings in disrepair



Open drainage channel along 220th Street



Typical modular building



Central plant generators



Central plant equipment



Outdated electrical gear in Main Hospital



Typical cottage



Typical modular campus support building



Existing interface with mechanical systems and modular buildings



Building N32 - Typical modular building



Park-N-Ride lot at Harbor Freeway



New Emergency Department construction



LA Bio-Med Hanley-Hardison Research Center



LA Bio-Med Walter P. Martin Research Center



LA Bio-Med Steve C.K. Liu Research Center



LA Bio-Med Saint John's Cardiovascular Research Center



Existing Hospital Tower



Existing parking structure with Photovoltaic cells



Typical campus walkway



County Medical Offices N-25 Building



New elevator connection to Existing Hospital Tower



Parking at campus edge facing Carson Street



Typical internal campus street



Campus edge at Carson Street

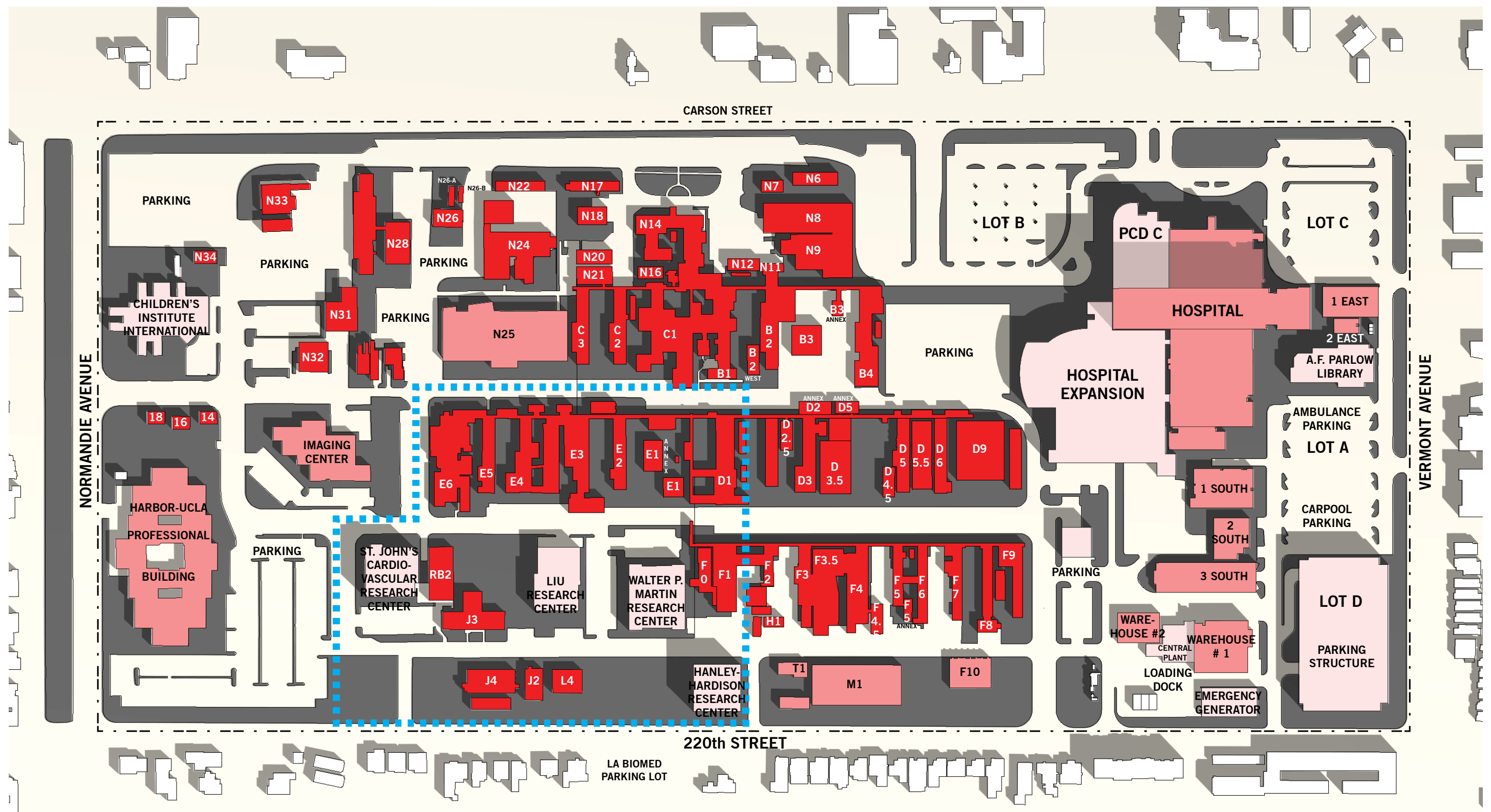


Accessible ramps interfacing with WWII modular buildings

EXISTING BUILDING CONDITIONS



The adjacent plan illustrates the overall conditions of the buildings that make up the current Harbor-UCLA Campus. Most of the campus functions on the site are housed in the original army barracks that were part of the 1940's U.S. Army's Port of Embarkation Hospital. These buildings were temporary and were designed to have a life span of approximately seven years. The original barracks are currently in poor condition and have been classified as having only a 'short-term use' (replacement needed immediately or within 5 years). Buildings built later, having better conditions have been classified 'medium-term use' (replacement needed within 5-20 years) The newest, more technologically current buildings on the site have been classified as having a 'long-term use' (replacement needed within 20+ years).



LEGEND

- SHORT TERM USE
- MEDIUM TERM USE
- LONG TERM USE

EXISTING BUILDING CONDITIONS PLAN

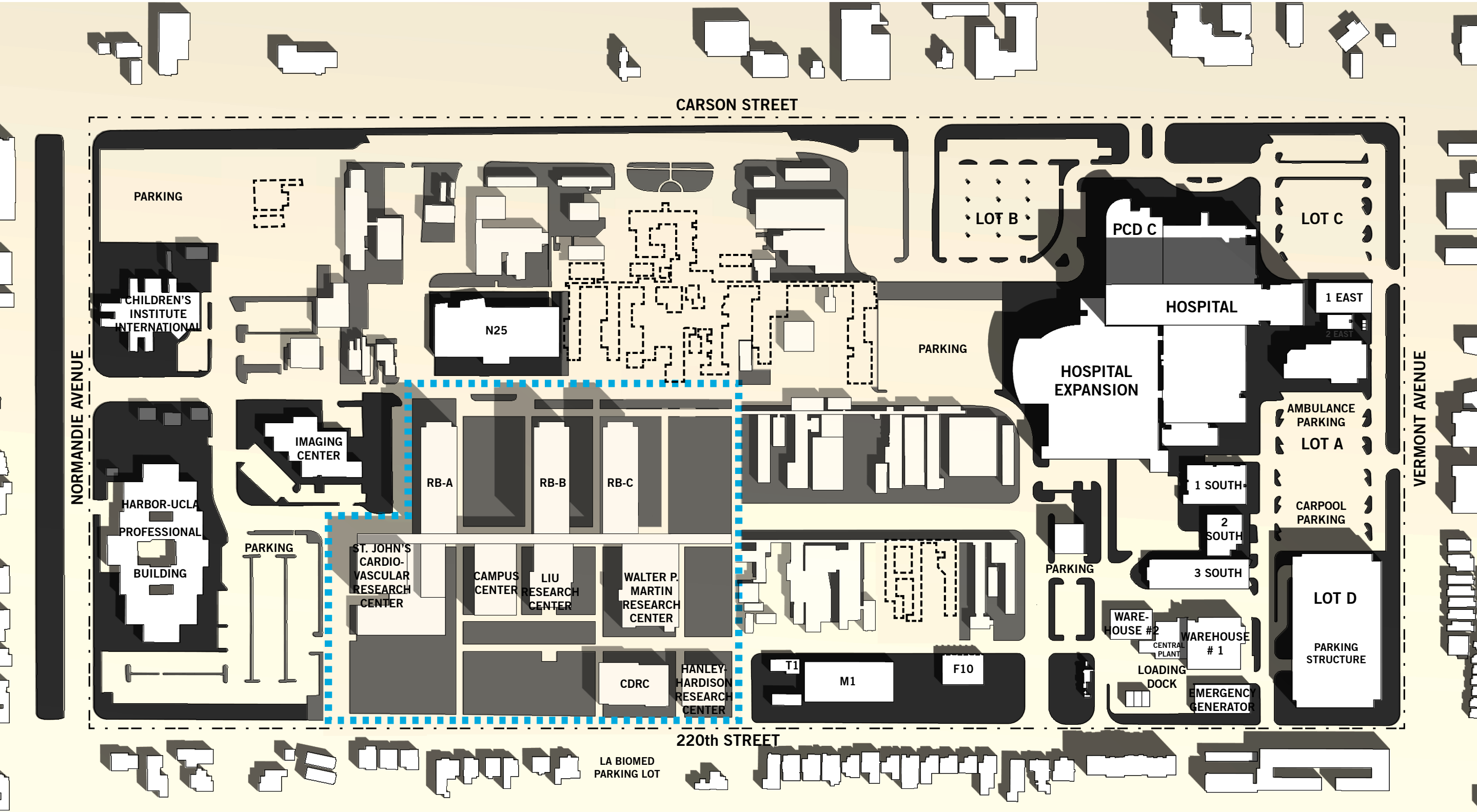
- LABIOMED SITE BOUNDARY
- PROPERTY LINE



LA BIOMED MASTER PLAN



LA BioMed (Los Angeles Biomedical Research Institute) is one of the country's leading nonprofit biomedical research institutes. It conducts biomedical research, trains young scientists and provides community services, including childhood immunization and nutrition assistance. The adjacent drawing illustrates the consolidation of facilities into a comprehensive and cohesive master plan on the Harbor-UCLA Medical Center Campus.



LEGEND

LA BIOMED MASTER PLAN

- LABIOMED SITE BOUNDARY
- - - PROPERTY LINE
- VACATED LABIOMED BUILDING

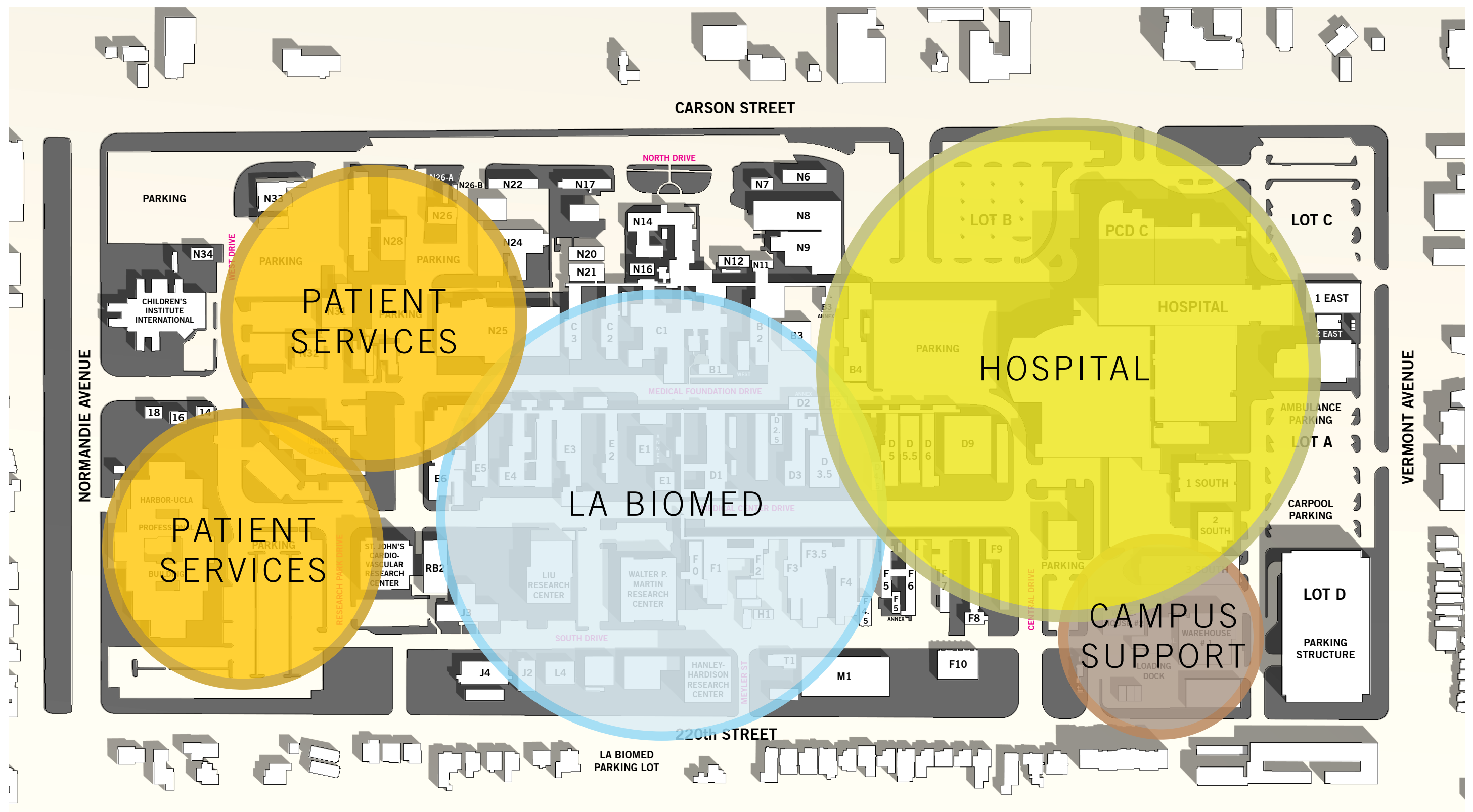


EXISTING ZONING



There is a stark contrast between the east and west sides of the campus with the hospital resting on the east quarter of the site. The remaining three quarters of the campus predominately contains World War II era barracks being utilized as clinics, offices and research laboratories. The Los Angeles Biomedical Research Institute (LA BioMed) occupies the central 16.5 acres of the campus using a long-term lease agreement with the County. Parking areas are well distributed along the perimeter equally serving the various programmatic needs of the campus. The site seems to be severely under-parked which is evidenced by countless rows of makeshift parking along the three primary east/west axes.

In the adjacent plan, the circle representing the approximate zone of LA BioMed appears to be the largest on the site due to the scattered nature of its buildings. Much LA BioMed's functions are spread out in small, low-rise modular buildings that take up much of the land area of the campus.



EXISTING ZONING PLAN



EXISTING SITE CIRCULATION



SITE ACCESS

Vehicular access to the campus is provided by a number of entrances from all four perimeter streets. The main entrance, on Carson Street, across from Children’s Institute International, is the only signalized entrance. A second signalized entrance, to the west of the existing signal, is planned as part of the current construction.

Other entrances to the site consist of:

- An unsignalized entry road (Medical Foundation Drive) from Normandie Avenue;
- An unsignalized driveway from Normandie Avenue directly serving the Harbor-UCLA Professional Building;
- Two unsignalized entrances on Vermont Avenue, currently chained, and not available for public access;
- Five unsignalized entrances on 220th Street, including an entrance just to the west of Vermont Avenue leading to the new parking structure.

ON-SITE CIRCULATION

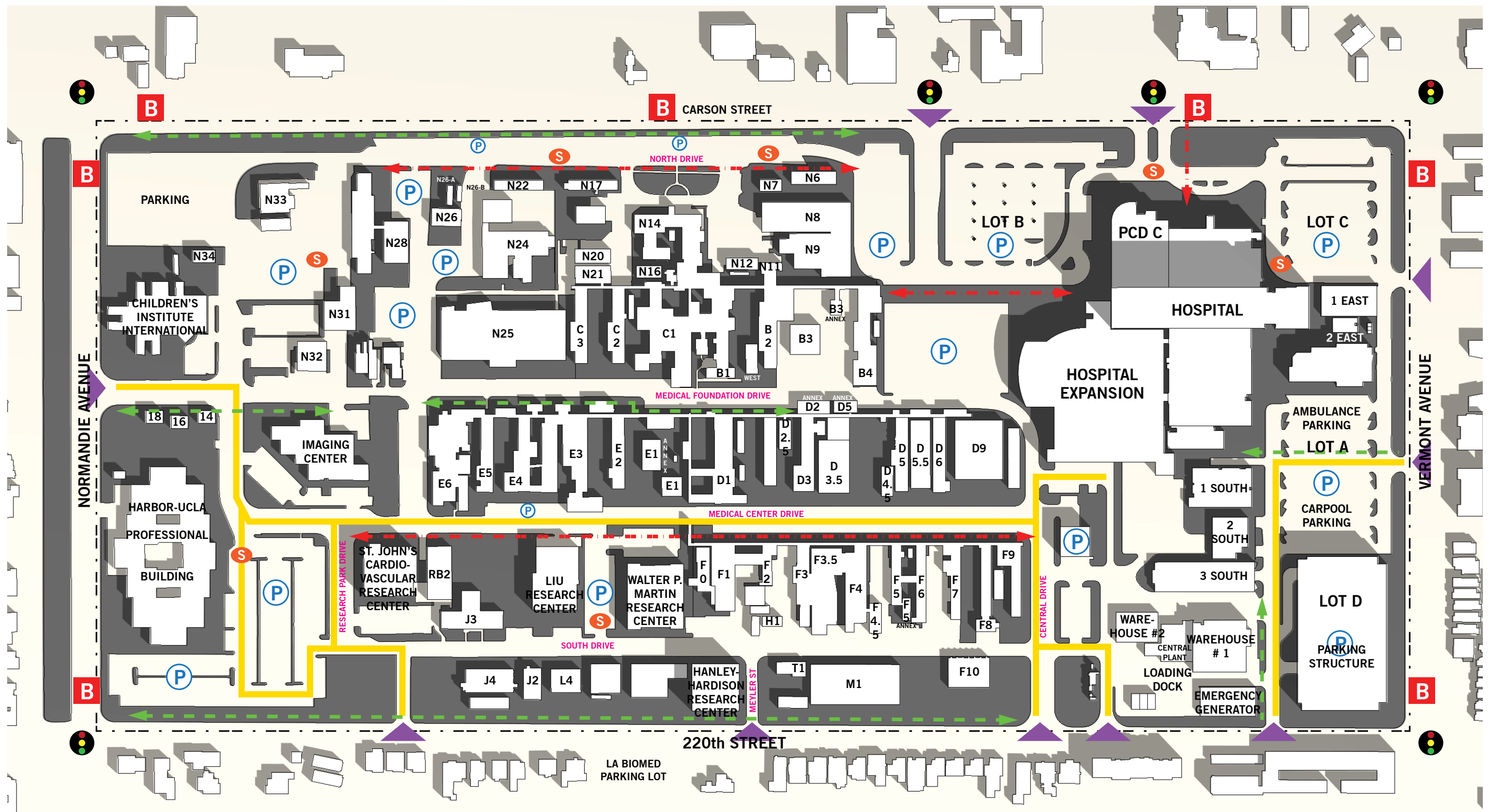
The street system providing circulation throughout the site consists of a series of two-lane roads and drives traversing the campus, most of them with parallel, angled, or 90-degree parking allowed on one or both sides. Most intersections of two roadways or drive aisles are stop-sign controlled. There are no traffic signals on the campus itself.

Four roadways allow for east-west movement through the majority of the campus:

- North Drive
- Medical Foundation Drive
- Medical Center Drive
- South Drive

North-south movement for vehicles through the site is limited, with most of the north-south segments extending no more than one campus “block” or dead-ending into a parking area. The current construction poses even more constraints to movement through the eastern 1/3 of the site.

Most of the on-site roadways do not provide sidewalks or curbs. Pedestrians walking from one building to another, or to and from their car must share the roadways with vehicular traffic.



LEGEND

- P PARKING
- S SHUTTLE BUS STOPS
- STOP LIGHTS
- FIRE DEPT. FIRE LANE ACCESS
26'0" ACCESS ROAD

- B BUS STOP
- PRIMARY PEDESTRIAN ROUTE
- SECONDARY PEDESTRIAN ROUTE
- ▲ CAMPUS ENTRY

EXISTING SITE CIRCULATION PLAN

--- PROPERTY LINE



WAYFINDING

The campus can be a confusing place to navigate for visitors to the site. Fortunately, most of the roads through the Harbor-UCLA Medical Center campus are named, and most intersections of two roadways have street name signs. In addition, most buildings or trailers have a building number (consisting of a letter and a number) or a building name, or both, visible to the driver, but finding a specific building can be difficult for those not familiar with the site. There are few directional signs, primarily posted at the main entrances from the public street system, and there are a few directory boards located throughout the campus. Drivers unfamiliar with the campus would benefit from more wayfinding assistance at the numerous on-site intersections and decision points throughout the campus. Some roadways dead-end into parking areas, and some have little room for maneuvering or turning around.

TRANSIT SERVICE

The Harbor-UCLA Medical Center campus is served by three public transit systems – LA Metro, Torrance Transit, and Gardena Municipal Bus Lines – and by its own on-campus shuttle service.

- Metro Lines 202 and 550 travel along Vermont Avenue, with bus stops at the Carson Street intersection and near 220th Street.
- Torrance Transit Lines 1 and 3 travel along Carson Street, with bus stops just east of Normandie Avenue, at South Budlong Avenue (roughly half-way between Normandie Avenue and Vermont Avenue) and at the main hospital entrance.
- Gardena Municipal Bus Line 2 travels along Normandie Avenue adjacent to the project site. Bus stops are provided on either side of the Carson intersection.
- An on-campus shuttle circulates through the campus for visitors and employees, with designated stops at several locations throughout the campus.

SURROUNDING STREET SYSTEM

Carson Street is a four-lane divided roadway with two travel lanes in each direction, turn pockets at intersections, and signals at major intersections. Along the project frontage, Carson Street has a painted center median, and numerous left-turn pockets providing access to the business properties on the north side of the street. An un-signalized crosswalk across Carson Street is provided mid-block at Budlong Avenue. On-street parallel parking is allowed on both sides of the street, with some time restrictions at times of the day. The posted speed limit along the project frontage is 35 miles per hour (MPH). Sidewalks are provided along both sides of the street.

220th Street is a two-lane undivided roadway along the south project frontage. On-street parallel parking is allowed along the south side of the street between Normandie Avenue and Vermont Avenue, and along the north side of the street between Normandie Avenue and the Central Drive entrance to the campus. Sidewalks are provided along both sides of the street.

Normandie Avenue is a four-lane divided roadway along the west project frontage, with two travel lanes in each direction, and a painted center median. Parking is allowed along portions of the street, and restricted by painted red curbs along others. The posted speed limit along the project frontage is 35 MPH. Sidewalks are provided along both sides of the street.

Vermont Avenue is a four-lane divided roadway along the east project frontage, with two travel lanes in each direction, and a continuous two-way left-turn lane in the center. On-street parallel parking is allowed on both sides of the street, except for between 3:00 and 5:00 AM. The posted speed limit along the project frontage is 40 MPH. Sidewalks are provided along both sides of the street.

The four intersections at the corners of the Harbor-UCLA Medical Center campus are all signalized, with crosswalks across all four legs of each intersection.

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PARKING LOCATION LEGEND

OFF-STREET PARKING		
AREA	STANDARD	ADA
A	116	4
B	193	29
C	134	10
D	525	10
E	51	9
F	37	4
G	103	1
H	9	1
I	136	11
J	109	0
K	110	7
L	24	2
M	32	2
N	29	2
O	8	1
P	42	3
Q	38	3
R	256	15
S	33	2
T	44	0
U	52	6
V	11	0
W	5	0
X	54	0
Y	17	2
TOTAL	2,168	124

ON-STREET PARKING		
LOCATION	STANDARD	ADA
NORTH DR	141	2
MED FOUNDATION DRIVE	157	2
MED CENTER DRIVE	179	4
SOUTH DRIVE	92	9
WEST DRIVE	16	0
RESEARCH PARK DRIVE	11	0
TOTAL	596	17
OFF-CAMPUS PARKING (NOT SHOWN)		
LOCATION	STANDARD	ADA
220TH	84	3
LOT V	173	0
CHILD CARE	21	0
TOTAL	278	3
GRAND TOTAL		
LOCATION	STANDARD	ADA
OFF-STREET	2,168	124
ON-STREET	596	17
CAMPUS TOTAL	2,764	141
OFF CAMPUS TOTAL	278	3
GRAND TOTAL	3,042	144
	3,186	

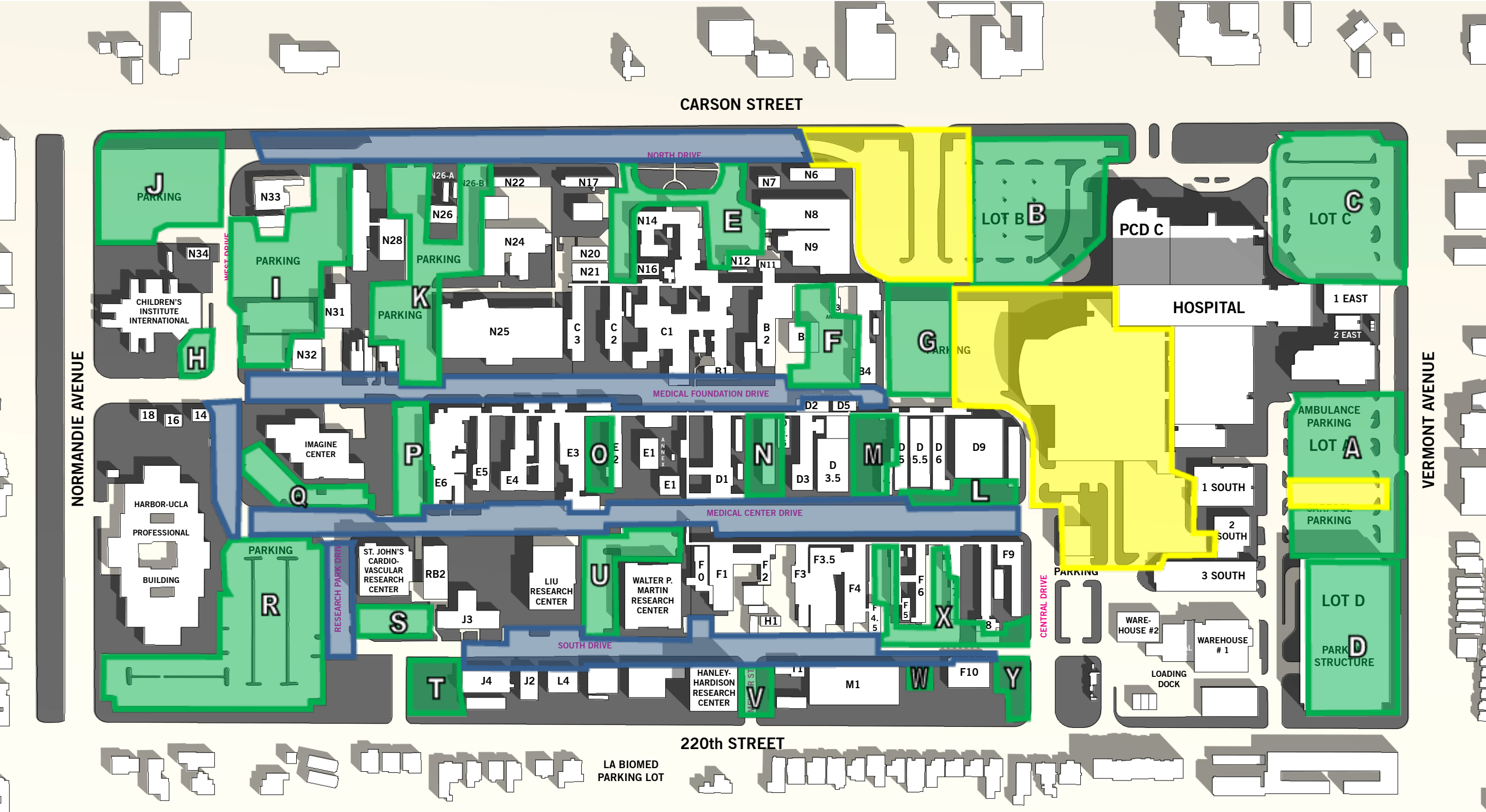
EXISTING PARKING



OBSERVED SUPPLY

Parking supply was inventoried on May 4, 2011. During this time there was significant impact on the parking supply from construction of the Harbor-UCLA Medical Center Surgery and Emergency Room Replacement Project. The overall campus parking supply was documented as 2,905 spaces which include those serving LA BioMed. In addition to on-site parking facilities, there are three off-campus lots which are used by either LA BioMed staff or Harbor-UCLA staff, which provide an additional 281 spaces, bringing the entire parking supply serving those on campus to 3,186 spaces. During this interim construction period staff was also asked to utilize the Los Angeles Department of Transportation Park and Ride Lot located on Carson Street just west of the Harbor Freeway (US 110), which contains roughly 143 parking stalls.

The areas highlighted in yellow indicate that the area was not in service due to construction. The green areas are off-street parking supply while the blue areas are the on-street parking supply. The adjacent table corresponds to the map and parking area indicators (letters) on the map.



LEGEND

- OFF-STREET PARKING
- ON-STREET PARKING
- CONSTRUCTION ZONE (PARKING UNAVAILABLE)

EXISTING PARKING PLAN



OBSERVED PARKING OCCUPANCY

OFF-STREET PARKING		
AREA	STANDARD	ADA
A	62	3
B	189	23
C	132	7
D	517	7
E	43	7
F	36	3
G	100	0
H	6	0
I	128	3
J	52	0
K	98	3
L	19	2
M	28	1
N	25	1
O	6	0
P	34	0
Q	32	2
R	168	8
S	21	2
T	32	0
U	33	4
V	4	0
W	2	0
X	45	0
Y	14	1
TOTAL	1,826	77

ON-STREET PARKING		
LOCATION	STANDARD	ADA
NORTH DR	137	2
MED FOUNDATION DRIVE	143	1
MED CENTER DRIVE	162	2
SOUTH DRIVE	69	5
WEST DRIVE	8	0
RESEARCH PARK DRIVE	7	0
TOTAL	526	10
OFF-CAMPUS PARKING (NOT SHOWN)		
LOCATION	STANDARD	ADA
220TH	82	2
LOT V	94	0
CHILD CARE	15	0
TOTAL	191	2
GRAND TOTAL		
LOCATION	STANDARD	ADA
OFF-STREET	1,826	77
ON-STREET	526	10
CAMPUS TOTAL	2,352	87
OFF CAMPUS TOTAL	191	2
GRAND TOTAL	2,543	89
	2,632	

PARKING CONTINUED

OBSERVED DEMAND

Parking demand was also observed on May 4, 2011. The observed demand was 2,439 vehicles on campus and an additional 193 off campus for a total of 2,632 vehicles generated by the campus land uses. The Park and Ride Lot was not counted. The construction on campus removed a significant portion of visitor and patient parking at the Harbor-UCLA main entrance, which was apparent with very high parking occupancy in that area. In other areas there was ample parking, and in some cases restricted to specific user groups and under-utilized. Many vehicles were parked along Vermont Avenue and 220th Street as well, which were likely generated by Harbor-UCLA. The parking occupancy count may be misleading because overall the numbers suggest that the parking supply is adequate. But severe localized shortfalls were observed, which means the parking supply should be realigned with user groups as best possible. The table to the left highlights parking area occupancy; the color green is below 75% occupied, the color yellow is between 75% and 85% occupied, and the color red is above 85% occupied.

CODE REQUIRED PARKING

The most recent reason for the Harbor-UCLA campus to perform an analysis of the minimum parking requirements per the County Code was for the Final Mitigated Negative Declaration for the Harbor-UCLA Medical Center Surgery and Emergency Room Replacement Project dated February 24, 2006. The applicable County Code requirement is as follows:

County of Los Angeles Code Chapter 22.52.1120 Hospitals, convalescent hospitals, adult residential facilities and group homes for children.

A. Every hospital shall have two automobile parking spaces, plus adequate access thereto, for each patient bed. The parking may be within 500 feet of the exterior boundary of the lot or parcel containing the main use. At least 25 percent of the required parking shall be reserved and marked for the use of employees only.

B. Outpatient clinics, laboratories, pharmacies and other similar uses shall have one parking space for each 250 square feet of floor area when established in conjunction with a hospital.

The minimum requirement as calculated by Sigma Engineering, Inc. upon completion of the Harbor-UCLA Medical Center Surgery and Emergency Room Replacement Project is 2,709 spaces. This information can be found on pages 42 and 43 of the Final Mitigated Negative Declaration for that project.

In regard to County Code requirements for linear distance between parking and the land use it serves, the code 22.52.1120(A) reads, “parking may be within 500 feet of the exterior boundary of the lot or parcel containing the main use”. The Supervising Regional Planner for the County of Los Angeles Department of Regional Planning provided that the current interpretation for a hospital is that the campus is counted as a whole and not in lots or parcels. Therefore the parking requirements need not be provided within a specified linear distance if within the campus boundaries. But lots located outside of the campus boundaries must be within 500 feet to be included to meet the minimum parking requirement. Aside from the Park and Ride Lot, which is being used as overflow during the construction period, all lots noted within the observed parking supply off-campus lots are within 500 feet of the campus.

ITE RECOMMENDED PARKING SUPPLY			
USE	ITE PARKING RATIO	SIZE	SPACES
HOSPITAL BEDS	4.92 SPACES / 1 BED	553 BEDS	2,721
OUTPATIENT USE			
COUNTY	4.74 SPACES / 1,000 SF	140,270 SF	665
PROFESSIONAL BUILDING	4.30 SPACES / 1,000 SF	54,087 SF	233
CHILDRENS INSTITUTE INT'L	4.74 SPACES / 1,000 SF	23,435 SF	111
AMERICAN HEALTH SVCS	4.74 SPACES / 1,000 SF	14,400 SF	68
LA BIOMED WOMEN'S HEALTH	4.74 SPACES / 1,000 SF	5,775 SF	27
CHILDCARE CENTER	3.70 SPACES / 1,000 SF	4,360 SF	16
OUTPATIENT USE SUBTOTAL		242,327 SF	1,120
RESEARCH USE	2.50 SPACES / 1,000 SF	253,612 SF	634
TOTAL ESTIMATED DEMAND			4,475

ITE PROJECTED PARKING DEMAND

Minimum parking requirements must be met, but may not provide adequate supply to meet demand. Therefore, other sources should be consulted or site-specific studies should be performed to best understand Harbor-UCLA parking demand. It has been a campus policy to meet or exceed the minimum parking requirement, but no prior studies could be produced which suggest an adequate amount of parking to meet campus demand. Very basic information from the Institute of Transportation Engineers (“ITE”) publication Parking Generation can be used to develop order of magnitude calculations of parking demand for the various land uses on the Harbor-UCLA campus. When these ratios are applied, we project parking demand of 4,475 for the existing campus using the base data from the Final Mitigated Negative Declaration. This projection is based on national averages and therefore should be tailored to the market (commuting trends and demographics served) and specific site (transit availability). The tailored parking demand number for the Harbor-UCLA campus upon completion of the Harbor-UCLA Medical Center Surgery and Emergency Room Replacement Project is 3,702 spaces (2,640 Staff and Physician + 1,062 Visitor and Patient).

Parking demand from the national source data is then refined to account for site and market conditions.

STAFF AND PHYSICIAN DEMAND				
	ITE BASED DEMAND PROJECTION	SITE/MARKET MODE SPLIT	SITE/MARKET CAPTIVE ADJUSTMENT	RECOMMENDED SPACES
HOSPITAL BEDS	2,177	86.7%	100.0%	1,887
OUTPATIENT USE				
ON-CAMPUS COUNTY CLINICS	222	86.7%	95.0%	183
PROFESSIONAL BUILDING	78	86.7%	98.0%	66
CHILDRENS INSTITUTE INT'L	37	86.7%	100.0%	32
AMERICAN HEALTH SVCS	23	86.7%	100.0%	20
LA BIOMED WOMEN'S HEALTH	9	86.7%	100.0%	8
CHILDCARE CENTER	5	86.7%	100.0%	4
RESEARCH USE**	634	86.7%	80.0%	440
	3,185			2,640

VISITOR AND PATIENT DEMAND				
	ITE BASED DEMAND PROJECTION	SITE/MARKET MODE SPLIT	SITE/MARKET CAPTIVE ADJUSTMENT	RECOMMENDED SPACES
HOSPITAL BEDS	544	86.7%	100.0%	472
OUTPATIENT USE				
ON-CAMPUS COUNTY CLINICS	443	86.7%	100.0%	384
PROFESSIONAL BUILDING	155	86.7%	100.0%	134
CHILDRENS INSTITUTE INT'L	74	10.0%	100.0%	7
AMERICAN HEALTH SVCS	23	86.7%	100.0%	39
LA BIOMED WOMEN'S HEALTH	18	86.7%	100.0%	16
CHILDCARE CENTER	11	86.7%	100.0%	10
	1,290			1,062

CODE PARKING RATIO				
USE	CODE PARKING RATIO	SIZE	SPACES	
HOSPITAL BEDS	2 SPACES / 1 BED	553 BEDS	1,106	
OUTPATIENT USE	1 SPACE / 250 SF			
ON-CAMPUS COUNTY CLINICS		140,270 SF	561	
PROFESSIONAL BUILDING		54,087 SF	216	
CHILDRENS INSTITUTE INT'L		23,435 SF	94	
AMERICAN HEALTH SVCS		14,400 SF	58	
LA BIOMED WOMEN'S HEALTH		5,775 SF	23	
CHILDCARE CENTER		4,360 SF	17	
OUTPATIENT SUBTOTAL		242,327 SF	969	
RESEARCH USE	1 SPACE / 400 SF	253,612 SF	634	
TOTAL REQUIRED SPACES			2,709	

*Using Means of Transportation to work data for Torrance and Carson Combined.
**Square footage is wholly inclusive of LA BioMed space. ITE Parking Generation does not include the category “Research” and therefore, we utilize the County Minimum Requirement of 1 space per 4-- SF (or 2.5 spaces per 1,000 SF)
† Children are the patients and are dropped off, so very few vehicles are generated for visitor/patient from this land use.

EXISTING LANDSCAPE



The hospital campus is well planted with several landscaped courtyards and mature specimen trees. The adjacent diagram illustrates trees that are healthy, symmetrical, and have good structure. Every attempt should be made to box and preserve these trees during future construction. The east part of the site is primarily planted with Chinese Elm trees. The rest of the site does not have a discernible planting hierarchy which may contribute to way-finding problems and a lack of internal campus identity

The campus perimeter is predominately lined with an eight-foot high chain link fence and concrete block wall. The north and south fences contain dense plantings of Bougainvillea vine which helps buffer the campus edge along the public realm. The west side of the campus has portions of open fence and solid concrete block wall framing both sides of the entry. The east side contains a low three foot wall topped with a five-foot chain link fence buffered by a generous planting edge. All four sides contain five foot wide curb adjacent sidewalks.

The campus entry on Carson Street is open and highly visible. An assortment of perimeter street trees occur around the hospital area, and with the exception of the Bougainvillea vine, the rest of the campus lacks landscape along the public edge. This lack of landscape, combined with a heterogeneous mix of tree and shrub species may contribute to an overall lack of identity within the surrounding community.

The County currently outsources the landscape maintenance to an independent contractor that works six days a week with an estimated annual budget of \$200,000. The campus does not have a central control for the irrigation system, and several instances of hand watering were observed during site visits. The hospital is required to provide maintenance to the curb edge on all sides which includes the street planting along South Vermont Avenue.

Several patches of turf are prevalent throughout the central and east sides of the campus, and were under utilized by pedestrians. At an estimated expense of \$0.276 per square foot (irrigation and maintenance costs), the turf areas alone consume roughly 35% of the annual site landscape budget.



LEGEND

 EXISTING TURF AREA - 260,095 SF	3 - WEEPING FIG	7 - CANARY ISLAND PINE
 EXISTING TREE	4 - EVERGREEN ASH	8 - LONDON PLANE TREE
1 - FLOSS SILK TREE	5 - JACARANDA	9 - BALD CYPRESS
2 - NAKED CORAL TREE	6 - AMERICAN SWEET GUM	10 - CHINESE ELM

EXISTING LANDSCAPE PLAN





ENGINEERING BACKGROUND

MECHANICAL

CENTRAL PLANT OVERVIEW

The Existing Central Plant consists of a boiler room, a main chiller room and an attached lower level step down small chiller room. The cooling tower is in the mechanical yard near the Central Plant. In general, all systems and equipment are well maintained and in good operating condition.

The Existing Hospital and Central Plant are compliant with Office of Statewide Health Planning and Development (OSHPD) criteria until the year 2030. However, the Existing Central Plant building does not meet the seismic requirements to serve new hospital (I) occupancy and it is not suitable for use past the 2030 date. The Central Plant also requires expansion in capacity to serve the master plan load growth.

BOILER PLANT

Three (3) gas fired steam boilers are installed in the boiler room. H-1 and H-2 are 400 HP boilers with steam capacity of 13,800 lbs. /hr and H-3 is 300 HP boiler with steam capacity of 10,400 lbs/hr. The steam boilers are operating at 80-100 psi high pressure steam. The boilers have been upgraded to meet current requirements of the South Coast Air Quality Management District and are properly permitted. The Boilers are reported, by the plant operators, to be in good condition with all tubes operating. Boiler capacity is sufficient to handle all existing loads and the new Surgery and Emergency Room Replacement Project that is under construction with a spare capacity of 16,588 LB/HR.

CHILLER PLANT

Four (4) centrifugal water chillers are installed in two chiller rooms. CH-1 is a 1,264 ton chiller. CH-2 is an 800 ton chiller and CH-4 is a 1,000 ton chiller. CH-1, -2 and -4 are located in the main chiller room. Ch-3 is a 750 ton chiller. CH-3 is located in the smaller chiller room attached to the Central Plant on the lower ground level. All chillers are in good operating condition. CH-1, 2 and 4 were recently installed. While CH-3 is an older R-11 machine, but it is in good condition and sufficient quantities of R-11 refrigerant were salvaged when CH-1, 2 and 4 were replaced that it can be left in service for a considerable period of time.

The total capacity of the chiller plant is 3,814 tons with chilled water pumping capacity of 6,065 gpm. The secondary chiller water system will distribute 2,490 gpm to the hospital campus, fully operating the three (3) parallel secondary pumps, only 41% of the total primary pumps capacity. The capacity of the plant provides for the current building loads and the anticipated new Surgery and Emergency Room Replacement Project loads with 1250 tons of spare capacity.

COOLING TOWER YARD

One (1) cooling tower with three (3) cells is installed in the south yard. Each cell is rated 1,200 tons with 2,800 gpm condenser water flow capacity. Towers are built up wood type with PVC fill. They are well maintained and in good condition

UTILITY DISTRIBUTION SYSTEM

The steam distribution system consists of 6” high pressure steam line with 3” pumped condensate return line from the Central Plant boiler room down into an underground trench which is connected to the hospital basement and then distributed to each of the mechanical rooms in the basement. Chilled water distribution system consists of 10” main chilled water supply and return lines from the Central Plant chiller room down into trench and to the hospital building distributed to each of the mechanical fan rooms to serve air-handling units, AHUs. Condenser water piping from the cooling tower yard is buried underground and feeds the Central Plant and is distributed to each of the chillers in the chiller rooms.

HOSPITAL BUILDING HEATING, VENTILATING AND AIR CONDITIONING, HVAC SYSTEMS

A typical mechanical room with steam to heating hot water and domestic hot water heat exchangers is provided in the basement. Space heating hot water is generated by heat exchanger and then distributed to the heating coils in air-handling units, AHUs, with floor mounted end-suction circulating pumps. A steam pressure reducing station is installed in the same room with the heat exchangers. Exchangers and piping appears to be in good condition.

Two mechanical fan rooms are provided on each floor to circulate air. The units serving the new intensive care units, ICUs, have been upgraded to single zone constant volume type. The majority of the air handlers are the original constant volume dual duct units with chilled water and heating hot water coils. The units are operating, and in fair condition. These units however do not contain pre and after filters that meet the current OSHPD filter requirements. There are approximately 90 tons of perimeter fan coils provided for patient bedrooms. These should be replaced on an as needed basis if the rooms remain.

PLUMBING

CENTRAL PLANT AND SITE UTILITIES

The high pressure gas main from the street and one of the 8” domestic/Fire lines serving the buildings is located next to the Central Plant cooling tower yard. The natural gas system is brought to the building from the meter and regulator assembly which is adjacent to the water service next to the cooling tower. It is a 6” welded steel pipe system which is regulated down to medium pressure and feeds the boilers in the plant. The gas regulator assembly is maintained by the Gas Company and is reported to not have any leaks. Spare capacity is available should additional gas be required. Gas meter/regulator assembly is maintained by the Gas Co.

The main systems and equipment for the Central Plant have been well maintained and are in good operating condition. Incoming 6” domestic water (raw water) is a pumped system and is distributed throughout the hospital. Two (2) raw water pumps, RWP-1 at 5 H.P., RWP-2 is 15 H.P. These have been well maintained and have been rebuilt. The water softening system is fed off of the pumped raw water system and is original to the facility. No problems were reported for this system.

The original compressed air system is located within the Central Plant and distributes throughout the hospital. There are two bulk oxygen tanks located at the southeast side of the Central Plant and is piped via a 3” underground line in the tunnel to feed the risers within the hospital.

Adjacent to the Central Plant is the emergency generator building and power plant. The power plant is provided with two underground fuel oil tanks, one 10,000 gallon and one 25,000 tank. The generator building has two 15,000 gallon fuel oil tanks for the generators. All of the tanks are monitored by a monitoring system with sensors in the interstitial space of the double wall tanks and has non-brine pipe monitoring.

HOSPITAL BUILDING PLUMBING SYSTEMS

South mechanical room (ME 247): Domestic hot water generators HG-1, HG-2 are vertical, semi-instantaneous type heaters rated at 1915 GPH each and 1575 gallons storage each tank. These provide hot water for floors 1, 2 and 3 and are heated by 15# steam from the Central Plant. They are operating and in good condition considering the age of the heaters.

Mechanical room (ME 100): Domestic hot water generators HG-3, HG-4 are semi-instantaneous type heaters, horizontal, rated at 785 GPH each, 680 gallons storage each and provide hot water for floors 4 through 8. They are heated by 15# steam from the Central Plant. They are operating and in good condition considering the age of the heaters.

MEDICAL VACUUM

The medical vacuum system consists of 3 vacuum pumps and a 200 gal receiver. They are each sized for 50% of the load and alternate between cycles. Vacuum pump #3 had been replaced a week prior to site visit. Vacuum pump #2 was replaced approximately 6 months ago and vacuum pump #1 is scheduled to be replaced. Motors have been rebuilt and are in very good condition.

MEDICAL AIR

The medical air system consists of eight compressors and two receiver tanks with desiccant dryers and filter system. System is fairly new and has approximately 20%-25% spare capacity. Additionally, there is a back-up bulk medical air manifold system which consists of 18 cylinders racked within the room.

FIRE PROTECTION

The fire sprinkler and standpipe system is fully operational and consists of multiple 6”/8” wet pipe risers and distribute throughout each floor. Pressure appears adequate with approximately 80-85 psi at the riser valves. Some previous leakage and age is evident.

ELECTRICAL

ELECTRICAL OVERVIEW:

The campus has both normal and emergency power. The normal 12 kV switchgear capacity receives its incoming supply from Southern California Edison (SCE). The highest campus's normal power demand is approximately 7 mega volt amp (MVA) which is approximately 28% of 24 MVA which can be provided by SCE. The existing substation 7 and Central Plant electrical distribution equipment are the original equipment and are at the end of their useful service life and should be considered for replacement as part of any Central Plant upgrades. All of the existing electrical distribution system equipment in the main hospital is at the end of its useful service life and will require replacement as part of any future planned upgrades. All of the substations are over 40 years old. Although the systems have been well maintained, the equipment will require replacement due to its age including the distribution feeders. The conduit infrastructure can be re-used assuming the electrical rooms remain in the same locations.

EMERGENCY POWER SYSTEM

The existing generator plant is approximately 8 years old. The 12 kV generators provide 100% back up power to the campus and have a capacity of 12.5 MVA (five running and one spare). The normal 12 kV switchgear capacity receives its incoming supply from SCE and has a capacity of 24 MVA. The generators provide 100% back up power to the campus and are in good condition. The existing campus 12 kV summer time peak electrical load is approximately 7 MVA or 28% of the normal power main switchgear capacity and 56% of the emergency generator plant capacity.

DISTRIBUTION SYSTEM OVERVIEW

Under the current Surgery and Emergency Room Replacement Project ,a new SCE service feed will be constructed to replace the existing service drop located on 220th Street. The new underground 66-12 kV service feeder will supply the existing SCE substation located in the southwest corner of the generator building that distributes power to the main campus 12 kV, 1200A switchgear lineup located in the generator building. The 12 kV, 1200A switchgear is double ended with a tie breaker that separates the incoming utility normal power and the generator Plant emergency power. Emergency power is supplied from (6) 2 mega watts (MW), 12 KV emergency generators. The main 12 KV switchgear in turn distributes power to 12 KV substations (Sub) 1 through 7 throughout the site

LIGHTING, LIGHTING CONTROL AND SECURITY SYSTEM

The existing light fixtures are original fixtures and have been retrofitted with energy saving ballasts. A lighting control system that is Title 24 compliant will need to be provided as part of the conversion to outpatient uses. Additionally, a security system with access control will be required due to various tenants occupying the facility.

CIVIL

Existing utility maps and as-built drawings in the project vicinity were collected and analyzed which included on-site utilities within the medical facility as well as utilities within the public right-of way adjacent to the Harbor-UCLA. Additional utility information was collected to analyze system capacity, design standards, and feasibility of connection to the existing system. A site visit was performed and included a meeting with Harbor-UCLA maintenance personnel to discuss the layout, operation, and deficiencies in the campus utility systems.

EASEMENTS

Several easements exist within the site as provided by what appears to be a previous survey, dated May 3, 2011, provided by the hospital and confirmed with our own review of a recent Preliminary Title Report dated August 29, 2011.The easements include a 10 foot wide gas easement in the old Meyler Street right-of-way, a 15 foot wide storm drain easement, a 7-foot wide sewer easement, a 2.5’ wide easement for storm drain purposes and a 30 by 32 foot County of Los Angeles easement for road purposes. A 12’ wide underground tunnel was shown as an encumbrance on the document provided by the hospital, although an easement for this could not be located on the current title search. The referencing document was a Department of Public Works construction drawing.

Many of the easements listed in the provided Title Report either are of a non-plottable nature due to the lack of legal description to specifically locate the easement or do not directly affect the subject property, rather those items fall within the dedicated roadways adjacent to the property.

WATER

There are three water providers within the vicinity of the Medical Center including The Metropolitan Water District (MWD), the California Water Service Company’s Rancho Dominguez District (CWS), and the City of Los Angeles Department of Water and Power (LADWP). The California Water Service Company (CWS) owns and maintains distribution mains within the roadways around the medical center that range in size from 6-inches to

33-inches in diameter. Based on preliminary utility research and conversations with facility staff, the medical center is currently served off of the CWS mains at 4 connection points with a backup system connection off of the LADWP main that is not continuously operational.

The four connections to the CWS water system are made at various locations. One connection is made from the 220th Street main line, approximately 450 feet west of Vermont Avenue and is near the Central Plant. Another single connection is made from the Vermont Avenue main line approximately 300 feet north of 220th street. The final two connections are made from the Carson Street main. One of the Carson Street connections is located adjacent to the main hospital entrance off of Carson Street, approximately 600 feet west of Vermont Avenue. The other Carson Street connection is located close to mid-block, approximately 1400 feet west of Vermont Avenue. The LADWP connection is made from Normandie Avenue, approximately 300 feet south of Carson Street.

Existing pressure tests were obtained from CWS for different locations near the medical center during late 2009 and 2010 at three locations including Carson Street and Normandie Avenue, 220th Street and Vermont Avenue, just west of Vermont Avenue, and 220th Street and Vermont Avenue, just east of Vermont Avenue. The pressure test results are summarized below:

Location	Static Pressure	Residual Pressure	Total Flow Observed	Calc. Flow at 20 PSI
220 th and Vermont, West of Vermont	78 psi	63 psi	4545 gpm	9434 gpm
Carson and Normandie	75 psi	68 psi	2148 gpm	6538 gpm
220 th and Vermont East of Vermont	80 psi	28 psi	1358 gpm	1467 gpm

The 220th Street and Vermont Avenue, east of Vermont Avenue pressure test was obtained from a hydrant connected to a 6-inch water main in 220th Street which may have caused the significant pressure drop for this test compared to the other two fire flow tests which were taken off of 10-inch or larger mains. Although there appears to be significant pressures in the area, future development should verify if the existing system can supply adequate pressures and flows to the site based on final development type and building fire flow requirements. If future services are anticipated to be taken off of 6-inch or 8-inch mains in the street, additional fire flow tests should be conducted from hydrants connected to the mains that are anticipated for connection to verify the pressure and flow in the system at that location.

MWD owns a 78-inch transmission main in 220th Avenue. Given the size of the pipeline, it is highly unlikely that any service connections will be allowed off of this pipeline as MWD typically does not allow individual connection to its distribution mains. This is currently the only known MWD transmission main in the area.

Based on the 1993 District 5 Interceptor Relief Trunk Sewer As-Built plans, an LADWP 30-inch water main is shown on Normandie Avenue. No flow tests were performed on this system, though facility staff indicated that when the on-site system was originally connected to the LADWP main, the high pressure in the system caused damage to several on-site water mains. Subsequently, a pressure regulator was placed on this connection.

The on-site water system is looped and consists of 10-inch and 12-inch main lines. Generally, water mains are located in the main north-south and east-west roads. The system was overhauled recently after the connection to the LAWPD water main caused multiple system failures. The water pipe network is relatively new and maintenance should not be a major issue. Most of the on-site building fire services are connected to the on-site looped system, though the site water plan indicates that the hospital fire service is taken directly from the Vermont Avenue water main. The site is served by the County of Los Angeles Fire Department, which is currently compiling an inventory of all site fire services. Domestic water is provided by connections to the on-site water system.

County of Los Angeles Fire Department personnel indicated that the on-site fire flow requirement will be determined using Table B105.1 from the California Fire Code. The maximum required fire flow established in Table B105.1 is 6,000 gallons per minute (gpm) at 20 pounds per square inch residual pressure for type IA, IB, IIA, and IIIA building construction types. The maximum required fire flow for type IIB, IIIB, IV, V-A, and V-B building construction is 8,000 gpm at 20 psi residual pressure. Required fire flows are also based on building square footages. The County of Los Angeles Fire Code allows for a 50% reduction of the required fire flows for buildings as approved by the fire department on a project-by-project basis. Hydraulic modeling of the on-site and off-site water distribution systems will be required by the fire department for new building construction on the campus.

RECLAIMED WATER

Reclaimed Water is currently not provided to the existing campus. Kimley-Horn looked into the opportunities for serving Harbor-UCLA with recycled water for landscape irrigation.

According to Earl Hartling, Water Recycling Coordinator with the Sanitation Districts of the County of Los Angeles (LACSD), their recycling efforts are concentrated in the eastern areas of the County and there are no plans to extend the system to the Torrance area in LACSD's District Number 5.

West Basin Municipal Water District (WBMWD) does have recycled water distribution systems in the west County area per Joe Walters, Manager of Business Development and Regulatory Affairs at West Basin. The closest facilities WBMWD has to the project site are about 3 miles away, with no future plans for extending their system to the vicinity of the project.

SEWER

The sewer system in the public right-of-way is owned and maintained by the County of Los Angeles Sanitation District (LACSD). Several large trunk sewers exist around the perimeter of the project including a 90-inch and a 63-inch sewer in Normandie Avenue, a 63-inch sewer within the easement at the southern end of the Harbor-UCLA, a 55-inch sewer that

runs through roughly the center of the campus site within the abandoned Meyler Street Alignment (Joint Outfall D, Unit 8), a 66-inch, 78-inch, and 8-inch sewer in Vermont, and a 66-inch sewer in Carson which eventually turns to the north just west of Berendo Street. Additionally, an 8-inch sewer runs east on Carson from Berendo, and a 24-inch sewer appears to run west down Carson toward Normandie, however, no as-built drawings were received for the area between Normandie and Berendo therefore, this sewer location and alignment could not be verified at this time.

Analysis of the on-site sewer plan and conversations with facility staff indicate that the portion of the site east of Central Drive, approximately 25% of the campus area, including the hospital, central plant, and cooling tower is served by sewer mains in Vermont Avenue, 220th Street, and Carson Street. The remaining 75% of the campus site area, west of Central Drive, is served by an on-site sewer network that discharges to the Sanitation District Joint Outfall D, Unit 8 trunk sewer through a single point of connection. Generally, the District strived to limit individual connections to its trunk sewer system; therefore, the campus may be limited to the existing single connection to Joint Outfall D, Unit 8. Site staff has indicated that there are currently no capacity issues with the on-site sewer system and that the pipes are in good condition. The sizes of the on-site main lines are unknown.

The County of Los Angeles Sanitation District has a will-serve process which includes published estimated loadings for sanitary sewer based on proposed site uses. In a letter dated August 24, 2011, the District indicated that the Joint Outfall D Unit 8 trunk sewer has a capacity of 28.4 million gallons per day (mgd) and a measured peak flow rate of 17.0 mgd as of 2008. In addition, the downstream sewage treatment facility, the Joint Water Pollution Control Plant in Carson, CA has a design capacity of 400 mgd and currently processes and average flow of 278.8 mgd. Both facilities have significant excess capacity for on-site development.

New development will require a sewer study that verifies the capacity of the on-site sewer system and obtaining a will-serve letter from the Sanitation District. In addition, any construction, horizontal or vertical, within a Sanitation District easement, requires a build-over permit from the District.

STORM DRAIN

The County of Los Angeles Flood Control District owns and maintains the 208th Street Storm Drain which runs through Harbor-UCLA in a 15-foot wide easement. This storm drain line runs through the site in the north-south direction as an 8-foot high by 4-foot wide reinforced concrete box culvert (RCB). Near 220th Street, it turns westerly and flows as an open channel in an easement toward Normandie Avenue. On-site storm drain systems flow into the box culvert. Drawings for the 208th Street Drainage were obtained from the county of Los Angeles Flood Control District and included previous improvements made to Harbor-UCLA for the Surgery and Emergency Room Replacement Project.

The on-site storm drain network is operated and maintained by site staff. They have indicated that there are currently minimal problems with ponding and flooding. There were drainage issues previously in the southwest corner of the campus that were alleviated by a new connection to the County channel and some re-routing of the on-site drains. Staff has indicated that the on-site drainage system is very brittle and difficult to connect to. It is likely that significant redevelopment would require an overhaul of the on-site drainage system. In addition, plans for the Surgery and Emergency Room Replacement project specify a compressible material backfill over the existing RCB in traffic areas. This indicated that the RCB is also brittle and any construction, horizontal or vertical within the vicinity of the RCB may require similar special treatment.

New connection to the RCB or open channel owned by the Flood Control District will require a connection permit. This permit will require a proposed hydrology analysis and a comparison with the design peak flow rate of the existing facility. If the calculated peak flow rate exceeds the design peak flow rate of the facility, the District will generally require detention to mitigate the increase in peak flow rates. There are two typical design storms for development project in the County of Los Angeles. The 50-year capital flood event is used for major drainage courses and draining natural sumps where 3' of ponding or more is possible. The 25-year urban flood event is used for all other urbanized conditions. It is likely that the urban flood event will be used for on-site hydrology calculations.

Based on a rough, preliminary calculation utilizing County methods, the peak site runoff during a 25-year storm event is approximately 2.0 cfs per acre.

The County of Los Angeles determines the allowable amount of runoff that can enter its system based on historical records. The original hydrology records for the 208th Street drain date back to 1976; the drain was originally designed to accommodate the 10-year storm. The 10-year storm runoff, calculated with methods utilized in 1976, was 135 cfs for the 76 acres of area (subareas 8A, 9A, and 10A as depicted in the hydrology calculations). The hydrologic yield was 1.8 cfs per acre. The downstream County system that the 208th Street storm drain connects to is undersized for the historical 10-year event by approximately 16%. Reducing the historical hydrologic yield by 16% results in an adjusted hydrologic yield of 1.5 cfs per acre. It is likely that the allowable flow rate allowed at connections to the County storm drain will be limited to 1.5 cfs per acre. Given that the approximate site peak runoff is 2.0 cfs per acre, it is likely that detention facilities will be required for redeveloped areas.

STORMWATER MANAGEMENT

The County of Los Angeles Low impact Development Standards Manual of 2009 outlines the requirements for stormwater management in the County. Specifically, the manual sets for the criteria for stormwater treatment, hydromodification, and low impact development (LID). LID is a stormwater management strategy that aims to have developed site hydrology mimic undeveloped site hydrology.

The standard method for treating stormwater in the County of Los Angeles is through the application of LID Best Management Practices (BMPs). The LID Manual establishes a hierarchy of BMPs to be used for development sites as outlined below:

1. Infiltration BMPs
2. Storage and Reuse BMPs
3. Filtration and Biofiltration BMPs

A development site is required to capture and infiltrate or reuse the difference in volume during the 0.75-inch storm event between a developed site and the site in an undeveloped

condition (i.e. 0 percent impervious) where technically feasible. If infiltration and reuse are not technically feasible, then the excess volume may be directed to a filtration BMP with Engineered soils or a Biofiltration BMP; in both cases, the excess volume may only be discharged gradually.

In addition to the excess volume requirement, the County also requires that the entire 0.75-inch rainfall event be treated to remove urban stormwater pollution. This can be accomplished by utilizing a BMP that captures the developed runoff volume, or alternatively by a BMP that is design to treat a flow rate that corresponds to a rainfall intensity of 0.75 inches per hour. Oftentimes the volume and treatment requirements are met by the same BMP. Based on preliminary calculations, the required treatment flow rate is approximately 0.17 cfs per acre based on a flow rate design and the required treatment volume is approximately 2,200 cubic feet per acre based on a volume design. The excess volume to be infiltrated, reused, or stored is approximately 1,940 cubic feet per acre. Previously approved grading plans for the emergency/surgery replacement indicate that several dry wells are utilized in the new development area. It is likely that future development projects will utilize dry wells for infiltration to accommodate both the treatment and excess volume requirements. It is highly recommended that upstream pre-treatment devices accompany infiltration BMPs in order to maintain the infiltration BMP effectiveness.

In addition to the LID requirements set for the LID manual, the County also establishes hydromodification requirements that require the difference in peak flow rate, flow velocity, total volume, and depth/width of flow for the 2-, 5-, 10-, 25-, and 50-year storm with several exceptions. One exception is that a proposed project would not add impervious area beyond what exists pre-construction. Since the campus is fully developed and highly impervious, the hydromodification requirement will likely not be applied to the campus redevelopment.



Year	Requirement
2002	NPC 2
2008*	SPC 2 / NPC 3
2030	SPC 3, 4, 5 / NPC 5

**Possible extension to 2013*

Table 1 - SB1953 Requirements



STRUCTURAL

The structural portion of the master plan for Harbor-UCLA Medical Center was developed based upon performing a structural assessment of the existing facility, a review of legislative requirements and determining the future needs of the hospital. The structural assessment was performed for the buildings expected to impact future campus development. The assessment consisted of a brief visual review of the condition of the existing structures and a determination of the seismic classifications as defined by the California Building Code. A primary component of the seismic portion of the assessment is the requirement for acute care facilities to be compliant with the SB 1953 requirements by the 2030 deadline.

SB 1953 OVERVIEW

The Alquist Hospital Seismic Safety Act was passed by the Legislature in 1973 to require that acute care hospitals be constructed to remain operation after a seismic event. During the 1994 Northridge Earthquake many of the older hospital buildings sustained substantial damage and the Legislature amended the Alquist Act with SB 1953. The amendment requires hospitals to evaluate and rate the seismic performance of all their acute care hospital buildings. Based on the outcome of the evaluation, the buildings may be required to be retrofitted to sustain a major seismic event or no longer be used for acute care. Hospitals were required to submit compliance plans to OSHPD by January 1, 2002 to indicate what is being planned to meet the requirements for nonconforming buildings. The evaluation includes both the structural (SPC) and non-structural (NPC) performance of a building and places it in a category on a scale of 1 to 5.

It is required that the buildings meet the compliance deadlines shown in Table 1 to continue operation as an acute care facility. The purpose of these requirements is to strengthen older hospital buildings to resist major earthquakes.

The SB 1953 performance category status shown in Table 5 was provided by Harbor-UCLA Medical Center for review. The report noted that all the buildings except for the new Surgery and Emergency Room Replacement Project are to be retrofitted,

as needed, to meet the 2008 (2013 with extension) requirement of SPC 2 / NPC 3 and then to be removed from acute care services in 2030.

EXISTING BUILDINGS ASSESSMENT

A structural assessment was performed for the Harbor-UCLA Medical Center buildings expected to impact future campus development. The primary purpose of the assessment was to perform an evaluation of each building's seismic vulnerability. The buildings' anticipated performance during a seismic event was reviewed based on seismic performance categories developed by OSHPD.

EXISTING MAIN HOSPITAL DESCRIPTION

The main hospital structure was constructed in 1959 and consists of an eight-story center patient tower with seismically separated two-story south and north wings. There is a basement located under the structure with a sub-basement under the south wing. The center tower is rectangular with a footprint of 201 ft by 81 ft. The smaller wing sections are connected to each side of the tower on the longitudinal sides. The south wing is 185 ft by 149 ft. and the north wing is 185 ft by 119 ft. There is also an addition housing the PCDC department in the northwest corner (permit date 1989) and a cafeteria attached to the south wing (permit date 1975).

The floors are constructed of two-way concrete flat slabs that span 22 to 33 ft between columns with capitals. The columns are supported on spread footings. The lateral resistance is provided by concrete shearwalls. The shearwalls are located at the perimeter for the first two levels and within the interior of the building the full height.

A site visit was performed to observe the general condition of the buildings. Most of the structure was concealed by architectural finishes, however in areas where ongoing work was occurring and in mechanical rooms the structure was able to be observed. Based on the age of the building it may be expected that some areas may have experienced some level of deterioration if the finishes were removed. For the limited areas observed the concrete slab did not exhibit any significant



deterioration. In the penthouse areas there was noticeable deterioration in some areas that appeared to be in the process of being renovated as part of the current work being performed at the hospital.

EXISTING CENTRAL PLANT DESCRIPTION

The Central Plant was originally constructed in 1959 with upgrade and expansion permit dates of 1989 and 1994. The structure has two levels and partial basement. It is constructed with a concrete flat slab and structural steel.

SURGERY AND EMERGENCY ROOM REPLACEMENT DESCRIPTION

There is a new Surgery and Emergency Room replacement project currently under construction located on the southwest corner of the main hospital. The new building is structural steel with two floors above grade and a basement. The addition is currently under construction and will have SB 1953 ratings of SPC 5 and NPC 4 (Ref. Table 1).

GEOLOGICAL REVIEW

The medical center campus is located in an area that is subject to strong ground shaking in the event of an earthquake. This is common in Southern California and requires that buildings meet stringent building code requirements to mitigate the hazard.

GEOTECHNICAL REVIEW

The Geotechnical reports related to the recent and current construction projects were made available for review (Ref. 8, 9, 10 & 11). Based on these documents the natural soils are clays underlain by silty sand. Ground water was encountered at 65 ft below grade. The site is not within the Alquist-Priola earthquake fault zone for surface rupture. The reports note the potential for surface rupture, liquefaction and landslides as low. The closest active fault is the Palos Verdes Fault which is 5.6 km away. The expected seismic settlement is on the order of ½". Based on this information, there are no restrictions presented in the reports which would prohibit construction of new buildings on the campus.

HAZARDOUS MATERIAL STUDIES

Reports from 2007 and 2008 regarding testing for hazardous materials at the new Emergency Room addition and at an existing fuel tank were also provided (Ref. 12 & 13). The findings of the reports are that the level of hazardous materials tested for did not exceed allowable government agency levels and/or at levels higher than that naturally occurring in the geological area.

SUMMARY OF COMPLETED AND ONGOING SEISMIC RETROFITS

Main Hospital

The central tower portion had a seismic retrofit per the as-built drawings dated 2001. The lateral system was strengthened with new concrete shearwalls and frames attached to the exterior of the building. The new structural elements are located in a U-shape at the east and west ends of the building. The interior of the structure was not strengthened per the as-built drawings. The building has a SB 1953 rating of SPC 2 (Ref. 2).

The south and north wings had seismic retrofits that are in the final stages of completion at the time of this report, 2011. The south wing had new concrete shearwalls added and strengthening of existing shearwalls. The steel penthouse was strengthened with braces and rigid frames. The north wing work consisted of detaching and strengthening the canopy. Both wings will achieve a SB 1953 rating of SPC 2 (Ref. 3).

The current ongoing seismic retrofit also consists of anchorage and bracing of the non-structural equipment within the critical care areas and source equipment. The work was performed within the main hospital and equipment that supported the hospital that included the central plant. The areas identified above will have a SB 1953 rating of NPC 3 (Ref. 3).

Structural Performance Category (SPC)	
SPC 1	Buildings posing a significant risk of collapse and a danger to the public.
SPC 2	Buildings in compliance with the pre-1973 California Building Standards Code or other applicable standards, but not in compliance with the structural provisions of the Alquist Hospital Facilities Seismic Act. These buildings do not significantly jeopardize life, but may not be repairable or functional following strong ground motion.
SPC 3	Buildings in compliance with the structural provisions of the Alquist Hospital Facilities Seismic Safety Act, utilizing steel moment-resisting frames in regions of high seismicity and constructed under a permit prior to October 25, 1994. These buildings may experience structural damage which does not significantly jeopardize life, but may not be repairable or functional following strong ground motion.
SPC 4	Buildings in compliance with the structural provisions of the Alquist Hospital Facilities Seismic Act, but may experience structural damage which may inhibit ability to provide services to the public following strong ground motion.
SPC 5	Buildings in compliance with the structural provisions of the Alquist Hospital Facilities Seismic Act, and reasonable capable of providing services to the public following strong ground motion.

Table 2 - Performance Categories Established by OSHPD
(CBC Table 2.5.3 Summary)

Non-Structural Performance Category (NPC)	
NPC 1	Buildings with equipment and systems not meeting the bracing and anchorage requirements of any other NPC.
NPC 2	The following systems are braced or anchored in accordance with CBC. <ul style="list-style-type: none">Communications systems.Emergency power supplyFire alarm systemsEmergency lighting equipment and signs in the means of egress
NPC 3	The building meets the criteria for NPC 2 and in critical care areas, clinical laboratory service, pharmaceutical service spaces, radiological service spaces, and central and sterile supply areas, and specific components as listed in the CBC that have to meet the bracing and anchorage requirements.
NPC 4	The building meets the criteria for NPC 3 and all architectural, mechanical, electrical systems, components and equipment, and hospital equipment meet the bracing and anchorage requirements of California Building Code.
NPC 5	The building meets the criteria of NPC 4 and onsite supplies of water and holding tanks for wastewater, sufficient for 72 hours emergency operations, are integrated into the building plumbing systems. As an alternative, hook ups to allow for the use of transportable sources of water and sanitary waste water disposal have been provided. An onsite emergency system is incorporated into the building electrical system for critical care areas. Additionally, the system shall provide for radiological services and an onsite supply for 72 hours of acute care operations.

Table 3 – Nonstructural Performance Categories Established by OSHPD
(CBC Table 11.1 Summary)

Building	2008 (2013)	2030
Central Tower	SPC 2 / NPC 3	Delicense Acute Care
North Wing	SPC 2 / NPC 3	Delicense Acute Care
South Wing	SPC 2 / NPC 3	Delicense Acute Care
PCDC	SPC 3 / NPC 2	Delicense Acute Care
Cafeteria	SPC 4 / NPC 3	Delicense Acute Care
Central Plant	SPC 4 / NPC 4	Delicense Acute Care
Communications Bldg.	SPC 4 / NPC 4	Delicense Acute Care
Surgery/Emergency	SPC 5 / NPC 4	Continue Usage

Table 5 – Current Harbor/UCLA Compliance Plan (Ref. 7)

SEISMIC EVALUATION OF THE EXISTING BUILDINGS

The original main hospital was constructed in 1959 prior to the passage of the Alquist Hospital Seismic Safety Act. With the recent retrofits the seismic performance category has been upgraded to SPC 2 / NPC 3 classifications. This will allow the hospital to remain as an acute care facility until the year 2030. According to the definition provided by OSHPD, a SPC 2 classification does not significantly jeopardize life safety, however it may not be repairable or able to function after a large seismic event. This does not meet the requirements of SB 1953 for the buildings to remain operational after an earthquake.

By year 2030, the nonconforming main hospital buildings are required to be retrofitted to a SPC 4 / NPC 5 classification, delicensed as an acute care facility or demolished. The hospital’s current compliance plan shows the intention to delicense the buildings from acute care services.

The PCDC and cafeteria portion of the main hospital meet SB 1953 structural requirements but the interconnection with the original hospital will make using the facility as an acute care facility past 2030 challenging.

The Central Plant is classified as SPC 4 / NPC 3. The structural classification allows it to remain in operation beyond 2030 if the NPC classification is upgraded to NPC 5.

The communications building is classified as SPC 4 / NPC 4 and would also require an NPC upgrade to level 5 to remain in operation past 2030.

The Surgery and Emergency Room Replacement Project currently under construction will meet the current code and is not affected by the SB 1953 requirements.

The communications building ‘2 East’ located near Vermont Avenue is to remain and has a SPC 4 rating. The building was determined to be an important part of the campus that is not easily replaced based on its contents. The current non-structural classification will need to be upgraded from a NPC 4 to NPC 5 as part of the construction to meet the requirements set forth in SB 1953.

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EXISTING INFORMATION TECHNOLOGY



Harbor-UCLA medical applications reside in the Hospital's Data Center located on the Level B. The County's planned deployment of a centralized electronic health record (EHR) system would result in the creation of one or more regional data centers and may reduce (but not totally eliminate) the need for data center space on campus.

Harbor-UCLA utilizes Centrex services and an Avaya Telephone Switch to provide telephone services throughout the campus, with ties to the remote (off-site) clinics. The existing telephone switch is also capable of providing Voice over IP (VoIP) services but the current network infrastructure prevents a complete rollout of this technology at this time. The telephone switch is located in Building 2E (off Vermont, between Building 1E and the AF Parlow Library), which also houses the Main Point of Entry (MPOE) for the campus. Accordingly, this is a key building from a technology perspective

There is a connection from AT&T's Torrance Central Exchange Office to the campus, which runs down Carson Street and onto Vermont Avenue before entering Building 2E. Time Warner provides the Enterprise Wide Area Network (WAN) connectivity, with AT&T acting as the backup.

The on-campus cabling infrastructure takes two primary routes, with the original cabling meandering between the buildings on the north side of campus and a newer run of optical fiber cabling running down Medical Center Drive. The original cabling has expanded organically over time and there are little or no records of the cable types, quantities and routes taken. The newer cabling has much better documentation with cable types, quantities and routes specified.

Harbor-UCLA is affiliated to UCLA through the School of Medicine, but there are no technology links required at this time as shared applications are all web-based. LA BioMed has its own network and support staff, but there is a significant amount of coordination between the County and LA BioMed staff since there are a number of doctors requiring access to both the County and LA BioMed's systems. Currently this is typically done with two separate computers, but the Harbor-UCLA is looking for a better solution.

All Harbor-UCLA PCs are application/software locked for security and management reasons. There is no public wireless available on campus – this is a big dis-satisfier staff would like addressed if possible.



LEGEND

EXISTING INFORMATION TECHNOLOGY PLAN





EXISTING CAMPUS MATERIALS MANAGEMENT

The Materials Management (MM) department is responsible for the development, maintenance and coordination of all supply support systems, 24 hours a day, 365 days a year. They are responsible for the Loading Dock function, shipping and receiving, supply replenishment and Warehouse's #1 and #2. A brief overview of the current operations, equipment and departmental space follows.

WAREHOUSE #1

Warehouse #1 (WH#1) is the main portal into Harbor-UCLA for the majority of medical supplies, forms, housekeeping supplies and paper goods, and a wide variety of additional products. The Loading Dock, administrative / purchasing offices, shipping / receiving function and main storeroom are located in this space.

The storeroom space provides bulk and small unit of measure storage on two levels, connected by an 8,000 lb. freight elevator, and a recently installed 5,000 lb. freight elevator. The Loading Dock is connected directly to the second level of the Storeroom, and provides four (4) truck positions in its current configuration. The department also has responsibility for the Bed Storage, Salvage, and Emergency Supply stores function in Warehouse #2 (WH #2). The Loading Dock and WH #2 will be addressed in separate sections within this report.

The equipment and systems within the WH #1 Storeroom are adequate, but not state of the art. Shelving is basic bulk / pallet racking and hand stack shelving. Order picking is not automated. Electric Tug Vehicles and transport carts are used to transport supplies through the connecting tunnel to the Main Hospital, but all other transport and order picking systems are manual.

The large 8,000 lb. storeroom freight elevator is a major concern. It is subject to frequent break-downs, and has operational issues (loads must be centered to avoid deck tilt which shuts the elevator down, etc.) that hamper the efficiency of the department. The 5,000 lb. elevator does not provide access to the tunnel. Additional concerns include roof leaks, and a desire for improved departmental / supply loss security.

Based on space programming criteria, and experience with healthcare facilities of similar size and complexity, the WH #1 Storeroom, in its current configuration, does appear to be adequately sized to accommodate the campus at the point the Surgery and Emergency Room Replacement Project is completed.

WAREHOUSE #2

The WH #2 storeroom is currently utilized for bed storage, disaster supply storage and as a collection space for obsolete and broken equipment slated for salvage. The bed storage function was relocated to this location as part of the interim logistic plan put in place during construction of the Surgery and Emergency Room Replacement Project.

Equipment within WH #2 consists of vertical bed storage racking and bulk pallet storage shelving. Salvage equipment is staged on carts and open floor space.

This space is currently operating at near its capacity. Bed storage racking is consistently full. The disaster supplies stored here are constant in volume, representing a three day supply of the essential items needed to support the operations of the facility. Access to these supplies must be maintained so that they can be rotated and replenished when needed. The salvage



equipment staging function is the most difficult to manage and accommodate within this space. The many types, sizes and quantities of salvage equipment that may need staging at any given time make space allocation difficult. The equipment often must be held for long periods of time waiting for pick up.

LOADING DOCK

The WH #1 / WH #2 Loading Dock was expanded and reconfigured as part of the LB 2006 Phase II Materials Management Logistics Report plan to maintain operations during the time the new Surgery and Emergency Room Replacement Project is under construction. Alternate delivery locations for dietary supplies and clean / soiled linen where also identified in the report, and are currently in use. When the S/E Replacement project is complete, the linen and dietary receiving function will relocate to the new S/E loading dock. The WH #1 / WH #2 Loading Dock will remain basically the same at this point. The cardboard baler will move back the main loading dock when the Surgery and Emergency Room Replacement Project is complete.

The main WH #1 Dock has three (3) truck positions, each with a dock leveler. There is a fourth dock position, located between WH #1 and WH #2 that is seldom used. It does not have a dock lift or dock leveler.

A dock study performed by Lerch Bates as part of the 2006 Phase II Logistics Study indicated that four (4) truck positions would be the minimum recommended to ensure an efficient dock operation, if dietary supplies and linen had a separate docking location.

LINEN SERVICES

The delivery of clean linen, and the pick-up of soiled line are currently performed in an interim location, as called for in the interim logistics plan to allow operations to continue during construction of the Surgery and Emergency Room Replacement Project. Clean Linen is delivered to the Clinic entrance, and transported via elevator #12 to the Linen stores area. A laundry service trailer is currently parked in this same location for the collection of soiled linen. This function will be relocated to the

Main loading dock once the Surgery and Emergency Room Replacement Project is complete.

The department currently maintains a three (3) day supply of linen on-site. Linen is picked-up by the Medical Center's contracted laundry service every day except Friday. Departmental Linen inventories are replenished using a PAR re-supply model. Linen chutes are currently used to transport soiled linen vertically in the existing building. Linen is currently provided to Bungalow Clinics one (1) time per week. Bungalow deliveries are by Medical Center owned trucks with lift gates. Scrubs are currently provided on a manual exchange system..

WASTE MANAGEMENT

The Environmental Services Department is responsible for the collection, transport and processing of the Medical Centers' waste stream This includes:

- General Waste (GW)
- Regulated Medical Waste (RMW)
- Sharps Containers
- Pharmaceutical Waste
- Chemo Waste
- Pathological Waste


All waste processing equipment and staging space is currently located at the WH #1 Loading Dock. The equipment consists of an older Mark Costello brand Retort Sterilizer, a 40 cubic yard Compactor / Container and a cardboard baler.

Regulated Medical Waste is currently sterilized in the Retort Sterilizer, and then added to the General Waste compactor / container. The 40 cubic yard Compactor / Container is pulled (emptied) four to five times per week. Twenty six (26) additional three (3) cubic yard "dumpsters" are located throughout the campus. These are also emptied four (4) days per week. Hazardous waste is collected as needed in a chain-link enclosure located at the WH #1 Loading Dock.





03 PLANNING AND STANDARDS



By developing the Harbor-UCLA Medical Center campus into a “total health” environment, the campus can actualize its role as a central community resource that focuses on health management and care

SUSTAINABILITY

By developing the Harbor-UCLA Medical Center campus into a “total health” environment, the campus can actualize its role as a central community resource that focuses on health management and care. Harbor-UCLA Medical Center will be a regenerative place of healing, moving beyond carbon neutrality to a campus that improves the conditions for community health. Harbor-UCLA Medical Center can contribute to the health of the community and surrounding environment through this commitment to long-term sustainability.

The campus master plan expands current thinking beyond systems that “do less harm” through reducing negative resource impacts to create a campus that “heals.” Enhancing long-term sustainability is one of the key principles guiding this master plan. One of the linchpins of successful green building is an integrated design process that considers sustainability from the very beginning of each project. Sustainability and green building techniques should be integrated into all buildings from the beginning of design, through construction, to building occupancy and daily use. Various standards and guidelines aim to reduce resource and energy consumption, encourage water and solid waste recycling, integrate renewable energy generation, enable rainwater capture, support walking, and support occupant and environmental health. Green building techniques in buildings are intended to be integrated with campus infrastructure such as integrated stormwater and wastewater treatment. Together, all of these elements will effectively lower resource and energy requirements, reduce greenhouse gas emissions, and enhance long-term sustainability. The goals of the master plan are intended to evolve over time to accommodate new technology and green building practices.

- Green Building Metrics: Future buildings on the campus to meet the requirements of the USGBC's Leadership in Energy and Environmental Design Rating System (LEED) for Healthcare, [Platinum] certification and achieves the majority of “petals” of the ILBI's Living Building Challenge 2.0.
- Reducing Energy Demand: For each project, develop an energy simulation model that achieves an Energy Use Index (EUI) of approximately 75% below regional average. Renewable energy sourcing to meet the 2030 Challenge® carbon neutral goal. The catalyst for such drastic energy reduction is optimized solar management and high-performance envelope, coupled with system innovations. Also controlled natural ventilation systems coupled with displacement delivery and direct outside air fan systems deliver ventilation air.
- Renewable Energy Sources: Once the systems virtually eliminate thermal energy needs, electrical power generation becomes the primary focus.
- Water Balance: The campus to reduces total water consumption by 60%. On-site wastewater treatment removes harmful contaminants from discharge water and facilitates water reuse. A water positive development is the ultimate goal.
- Net-zero Waste: Using proven approaches, the Harbor-UCLA can reduce its waste generation.

- **Material Health:** Material Health refers to the impact of building materials on the health of building users and occupants. Future Harbor-UCLA Medical Center buildings and operations will prioritize material health and avoid building products that are harmful to humans, animals and the environment when healthier alternatives are available. The Living Building Red List, Perkins+Will Precautionary List, and Proposition 65 all filter material choices. Future buildings will prioritize indoor pollutant source control and specification of low-emitting, formaldehyde-free materials.

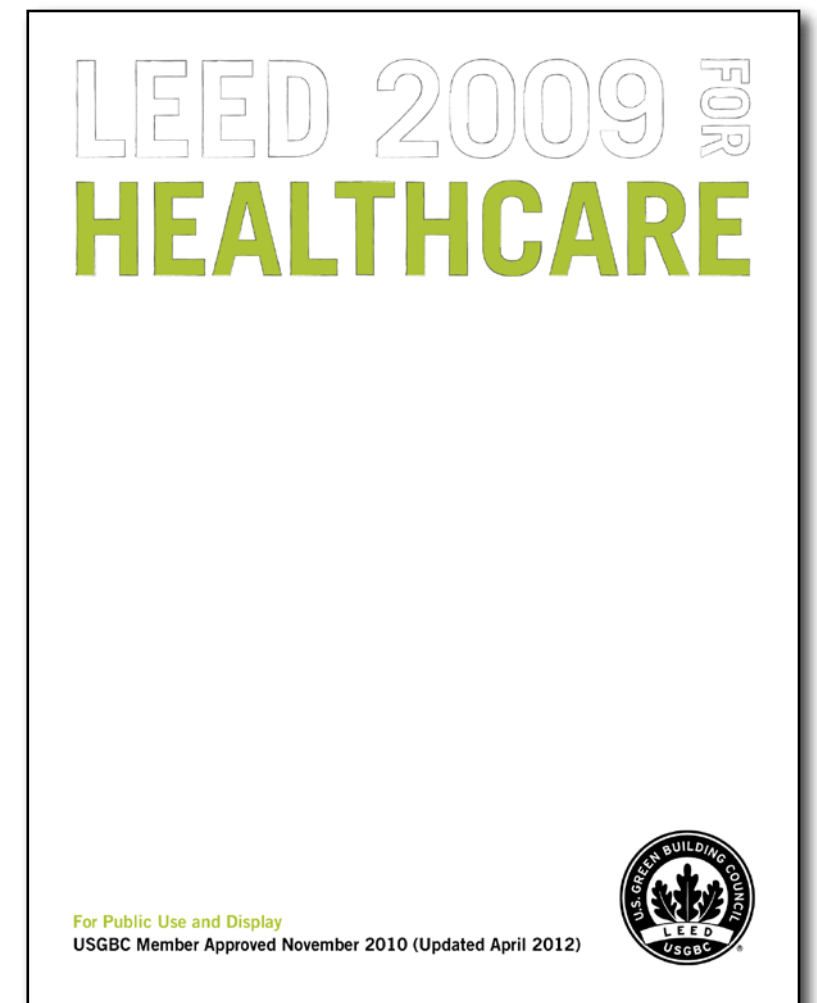
METRICS

Implementing the Harbor-UCLA Medical Center Campus Master Plan can be aided by a standardized approach to third-party certification systems. As the master plan is implemented these recognized systems can be utilized for environmental performance certification.

- **LEED for Healthcare Rating System / Green Guide for Healthcare:** Campus Buildings are designed to meet the requirements of the USGBC's LEED for Healthcare, [Platinum] certification and incorporates LEED Pilot credits on healthy materials selection.
- **LEED Application Guide for Multiple Buildings and On-Campus Building Projects:** Utilize to exploit economies of scale and the unique challenges and opportunities inherent in campus projects.
- **Living Building Challenge:** Achieve a majority of “petals” of the International Living Building Institute's Living Building Challenge 2.0.
- **2030 Challenge:** Goals of each project to meet the 2030 Challenge relative to reduction requirements for the year constructed.
- **Targeting 100!:** Utilize tools and approaches from research to meet the 2030 Challenge for the hospital.




Above: Perkins+Will Precautionary List
www.transparency.perkinswill.com



Above: LEED for Healthcare Rating System

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A photograph of a residential street with houses and a utility pole, overlaid with a blue tint and white text. The text is positioned on the right side of the image, reading: Harbor-UCLA will see increasing demand in the service area through 2030. This will result from an increase in the number of people living in the South Bay Region and aging of the population.

Harbor-UCLA will see increasing demand in the service area through 2030. This will result from an increase in the number of people living in the South Bay Region and aging of the population

MARKET PROJECTIONS

The planning team recognizes that many organizations are challenged to build facility infrastructure supporting health services in the current economic environment, with Harbor-UCLA as no exception. Projecting future demand for healthcare services that can be supported by Harbor-UCLA is a critical step prior to building development. In this section, the planning team has developed a comprehensive demand forecast organizing inpatient volume by service line, key ancillary activity, and on-campus patient clinic visits.

In this analysis, services have been evaluated based on their historical patient demand, anticipated demographic trends, and campus capabilities. Projections extend out 20 years to 2030.

LONG TERM DEMAND ANALYSIS

Harbor-UCLA will see increasing demand in the service area through 2030. This will result from an increase in the number of people living in the South Bay Region and aging of the population, with the greatest aging occurring during the 2020 to 2030 time period as an increasing number of boomers move into the age 75+ age cohort.

KEY FINDINGS

- Service area population will increase by over 600,000 people over the next 20 years
- It is anticipated that an additional 190,000 Medicare-eligible residents will be living in the service area over the planning horizon
- Limited facility expansion and an aging healthcare workforce will restrict access to healthcare services
- The service area has a very low inpatient utilization rate of 95.9 compared to the national average of 122.1,

representing limited opportunity for reductions in patient utilization

- Harbor-UCLA has low volume in key services including Pediatrics, Maternity, and Cardiovascular Surgery and Kidney Transplantation
- Assuming a percentage of Harbor-UCLA's volumes transition back to MLK Hospital, Harbor-UCLA will still experience a potential increase from 24,500 to 32,000 total discharges
- Future patient visits are anticipated to increase from 340,000 to 410,000 visits reflecting a slightly higher growth rate in outpatient versus inpatient volume

PRELIMINARY CONCLUSIONS

- Harbor-UCLA is a vital asset to the South Bay Region and thus warrants future investment to provide tertiary acute care services in the community, while maintaining its teaching and research missions
- Expanded access to Medi-Cal and a shifting of patients to Medicare over the next 20 years will not result in an out-migration of volume for Harbor-UCLA. This prediction is due to physician workforce shortages and limited facility investment in the region
- Increased coordination between Harbor-UCLA and other community resources (e.g., Family Health Centers, FHCs, Federally Qualified Health Centers, FQHCs) will be important to maintain already low utilization rates in the service area and it is believed that there is limited opportunity to reduce these rates further
- Harbor-UCLA warrants future investment to meet future demand while at the same time working to improve operational effectiveness

A close-up photograph of a doctor in a white coat and stethoscope examining a baby. The doctor is holding a stethoscope to the baby's chest. The baby is looking up at the doctor. The image has a blue tint.

In determining the space allocation for the recommended scenario, six primary categories were defined. The categories were organized according to department functionality and service scope

PROGRAM

CLINICAL SPACE PROGRAMMING CATEGORIES

In determining the space allocation for the recommended scenario, six primary categories were defined. The categories below were organized according to department functionality and service scope. These include patient beds, diagnostic and treatment services, clinical support, support services, teaching, and primary care and specialty clinics.

PATIENT BEDS	<ul style="list-style-type: none">• Patient care units inclusive of acute care, critical care, psychiatry, pediatrics post-partum neonatology
DIAGNOSTIC AND TREATMENT	<ul style="list-style-type: none">• Emergency and Urgent Care• Interventional services such as cath labs, interventional radiology and surgery.• Bronchoscopy and endoscopy• Major imaging modalities such as CT, MRI, ultrasound, X-ray, radiation oncology, PET and nuclear medicine• Labor and Delivery• Cancer services
CLINICAL SUPPORT	<ul style="list-style-type: none">• Emergency transport services, laboratory, pharmacy, respiratory therapy, and trauma services
SUPPORT SERVICES	<ul style="list-style-type: none">• Non-clinical support services to include administration, EVS, materials management, patient transport, admitting, biomedical engineering, gift shop, cafeteria, food services, security, general conference rooms, social services, case management and patient family services
TEACHING	<ul style="list-style-type: none">• Classrooms and teaching labs• Simulation space• Staff education and administration• Student health

PROGRAM SUMMARY



The adjacent diagram is a summary of the total campus programmed space. The master plan is comprised of four major program categories. The Hospital Category represents the Inpatient functions that make up the majority of the new buildings proposed as part of the master plan. The Outpatient Category includes clinical spaces that are not part of the New Hospital. The Other Services Category includes all other program that will support the mission of the campus. Finally, Campus Support includes support spaces for the physical operation of the campus.

All square footage totals are given as Building Gross Square Footage or BGSF. BGSF is defined as the total area occupied by the building measured from exterior to exterior. This area will include all mechanical chases, corridors, elevator/stair wells, mechanical penthouses/rooms, and building skin typically not included in a space program.

1,600,000 square feet PROPOSED
980,000 square feet EXISTING

HOSPITAL

Total BGSF: 1,158,540 SF

FUTURE HOSPITAL STRUCTURE

- Inpatient and Acute Care Services, 446 Patient Beds, (Currently 367 staffed beds) Interventional Services, Inpatient Imaging Department, etc.

NEW EMERGENCY DEPARTMENT / SURGERY BUILDING

- Emergency Department Surgery

EXISTING TOWER AND PCDC

- Outpatient and Hospital Support, Outpatient Imaging, Dept., Administrative Offices, etc.

OUTPATIENT

Total BGSF: 261,518 SF

BUILDING A

- Medical Foundation Offices, OB/ GYN, Surgery, Internal Medicine, Neurology, Pediatrics, etc.

BUILDING B

- Specialty Clinic Services, Classrooms/Labs, Library, Outpatient Imaging including MRI; CT, etc.

BUILDING C

- Mental Health, Social Services, etc.

OTHER SERVICES

Total BGSF: 125,600 SF

Meeting Spaces, Wellness Training, Post-Medical Care, Preventive Care, Nutrition Classes, etc.

Potential Commercial / Retail Uses

- Fitness Center, Herbal Shop, Bookstore, Juice Bar, Yoga Studio, Massage Therapy, Aromatherapy, Child Care, Health Food Market, Fitness/Exercise Store, etc.

CAMPUS SUPPORT

Total BGSF: 57,400 SF

CENTRAL PLANT

WATER TREATMENT

WAREHOUSES/MATERIAL MANAGEMENT

LOADING DOCK

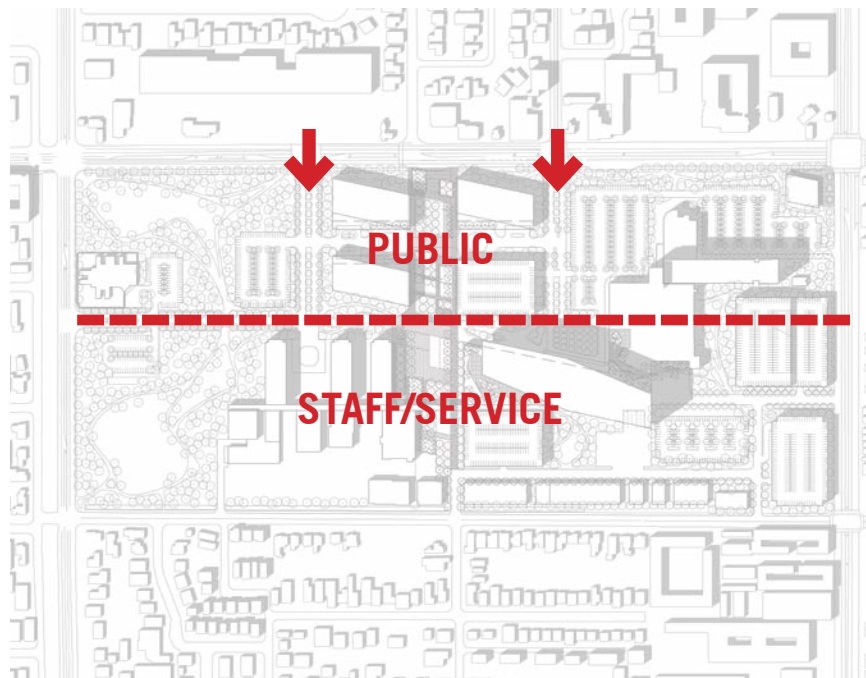
The background of the page is a detailed architectural site plan of the Harbor-UCLA campus. The plan is rendered in a light blue color on a darker blue background. It shows a complex arrangement of buildings, courtyards, and green spaces. A central vertical corridor, possibly a main entrance or a central axis, runs through the middle of the plan. Various building footprints are shown with different patterns and colors to represent different structures. There are also numerous small circles representing trees or landscaping. The overall layout is organized and systematic, reflecting a master plan design.

MASTER PLAN DESIGN PRINCIPLES



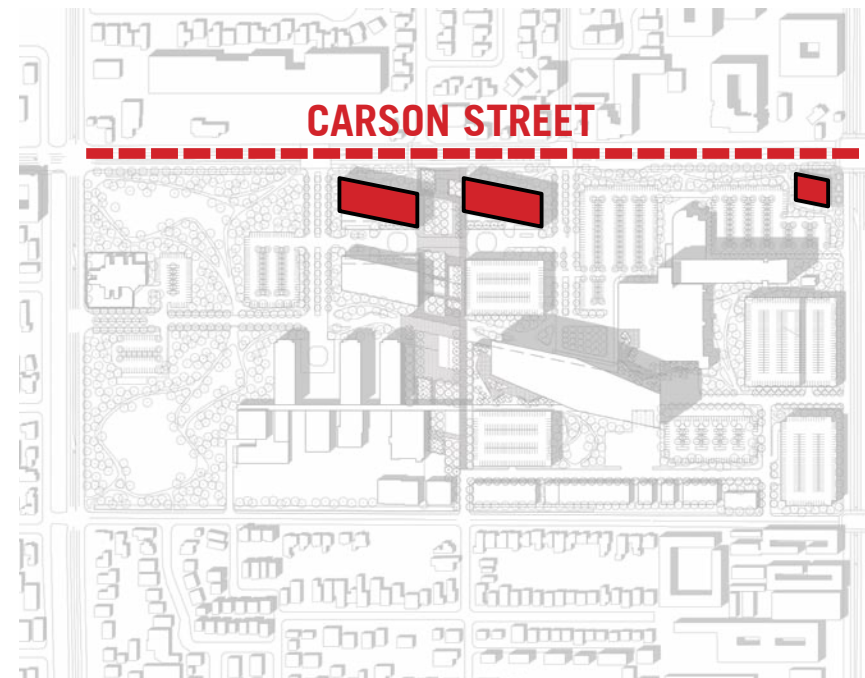
The analyses and studies revealed six underlying principles that began to shape and define the master plan.

These design principles relate to the new operational efficiency of the new Harbor-UCLA campus, the role of the campus in the surrounding community, and the experience of the campus to its users and visitors.



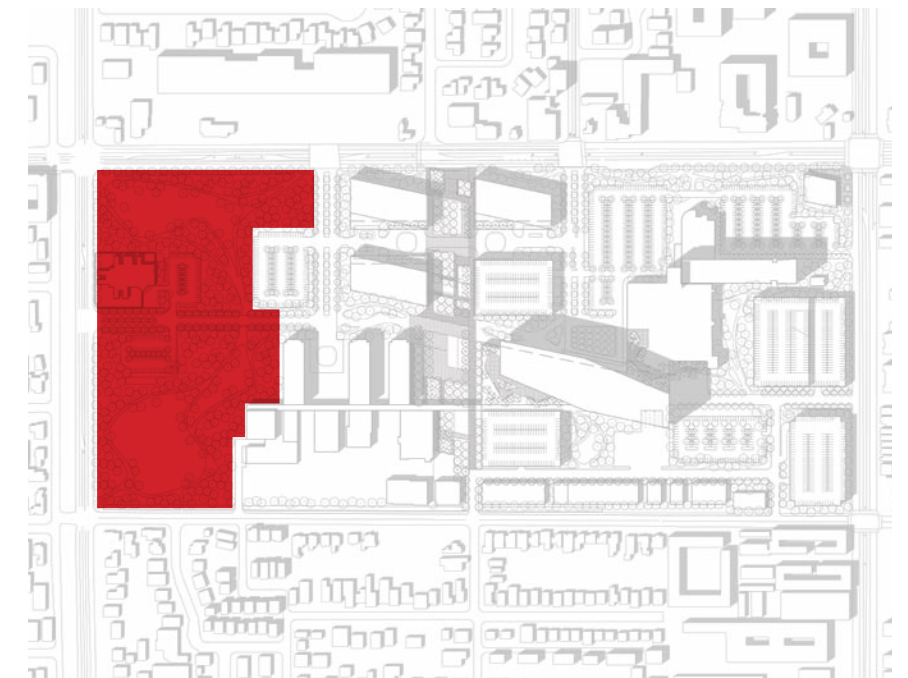
ORGANIZATIONAL CLARITY

The site will be zoned with public accessible zones to the north, and staff/service to the south. Public entry drives lead directly from Carson Street to the arrival plazas of the New Hospital and LA BioMed.



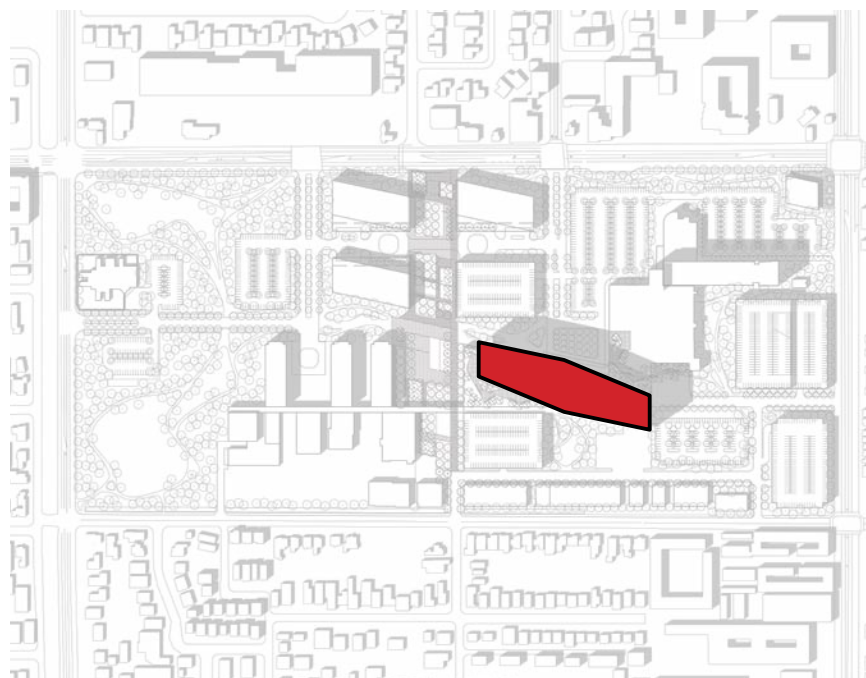
COMMUNITY INTERACTION

Commercial and community based interaction will be encouraged along Carson Street.



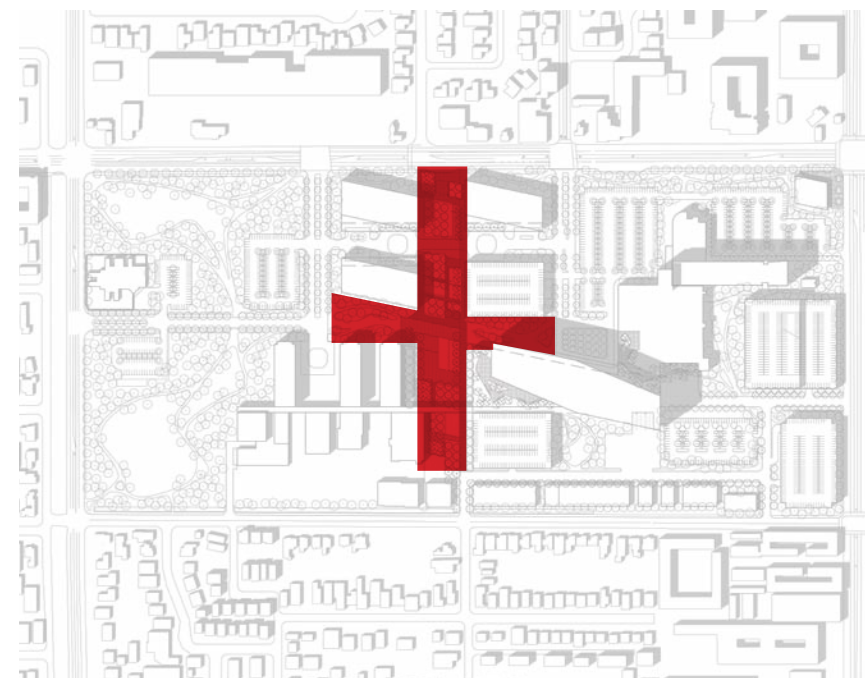
DEVELOPMENT FLEXIBILITY

The west portion of the campus is land banked and designated for future development.



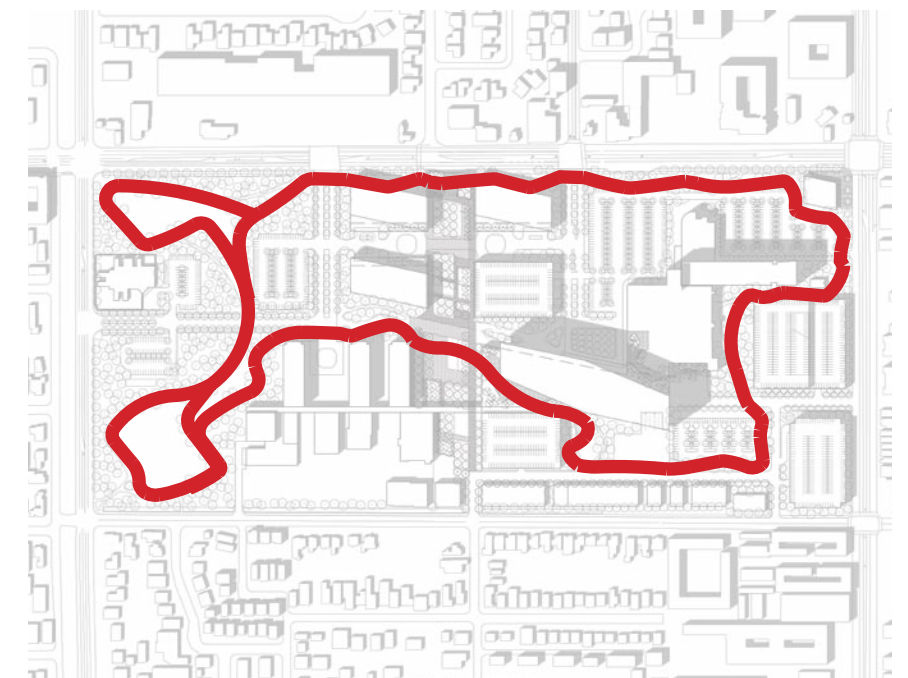
ICON

The New Hospital Patient Tower will be the tallest and most visible building on the site. Its siting will define the tower as the destination on the medical campus.



CENTRAL GARDEN

A central pedestrian spine connects the campus in the north/south direction.



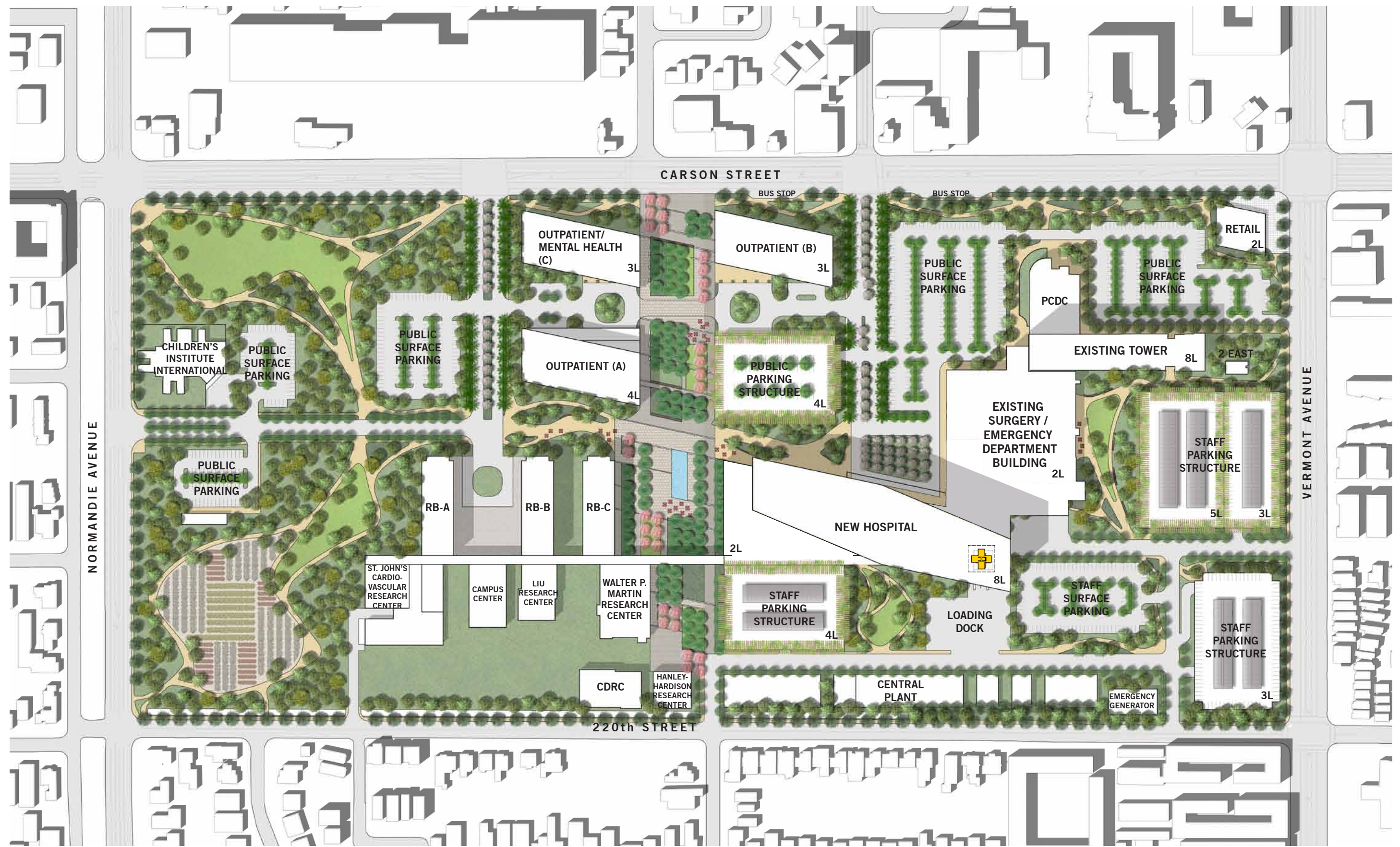
FITNESS TRAIL

A network of pedestrian oriented pathways and gardens weaves through the campus.

CAMPUS SITE PLAN



Through a phased development plan, a campus emerges that is both dynamic and sympathetic to its surroundings. It engages and interacts with the community while clarifying its own site organization. Pathways and healing gardens are woven into the uses and functions of the campus and link the site from end to end. Further defined in the Landscape Plan, the Central Plaza is the heart of the campus connecting the Hospital, Outpatient and Research facilities.



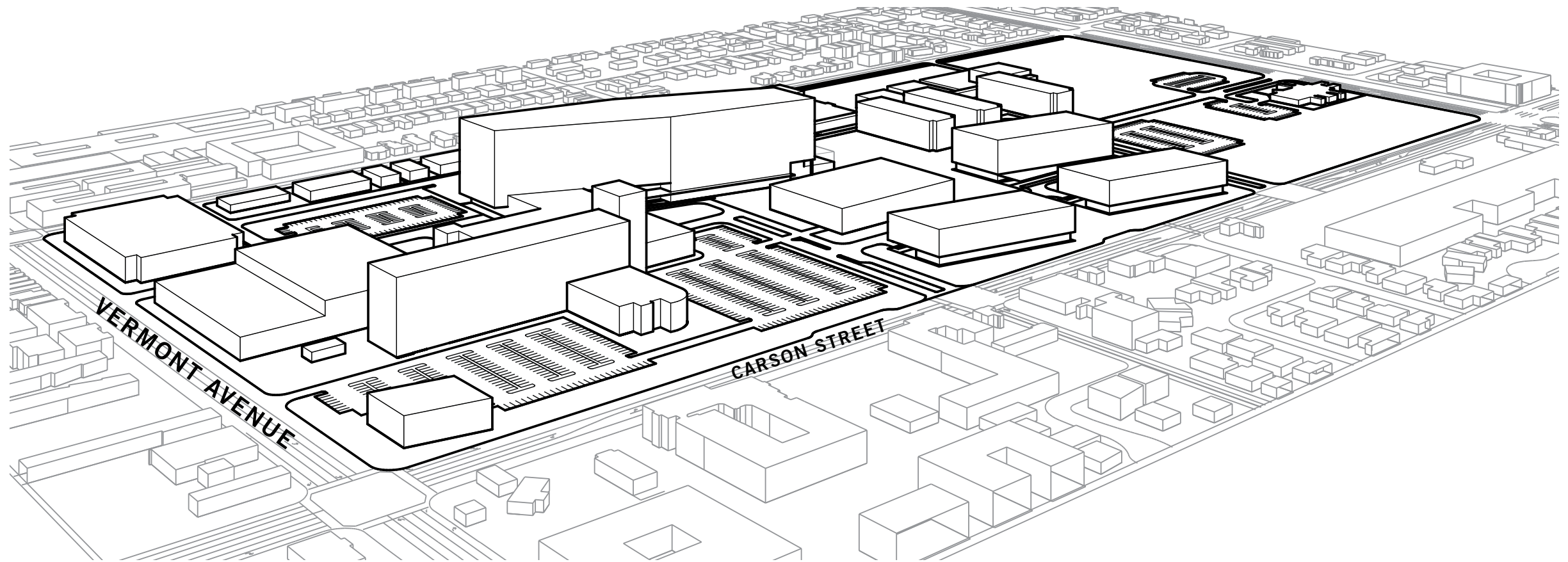
CAMPUS SITE PLAN



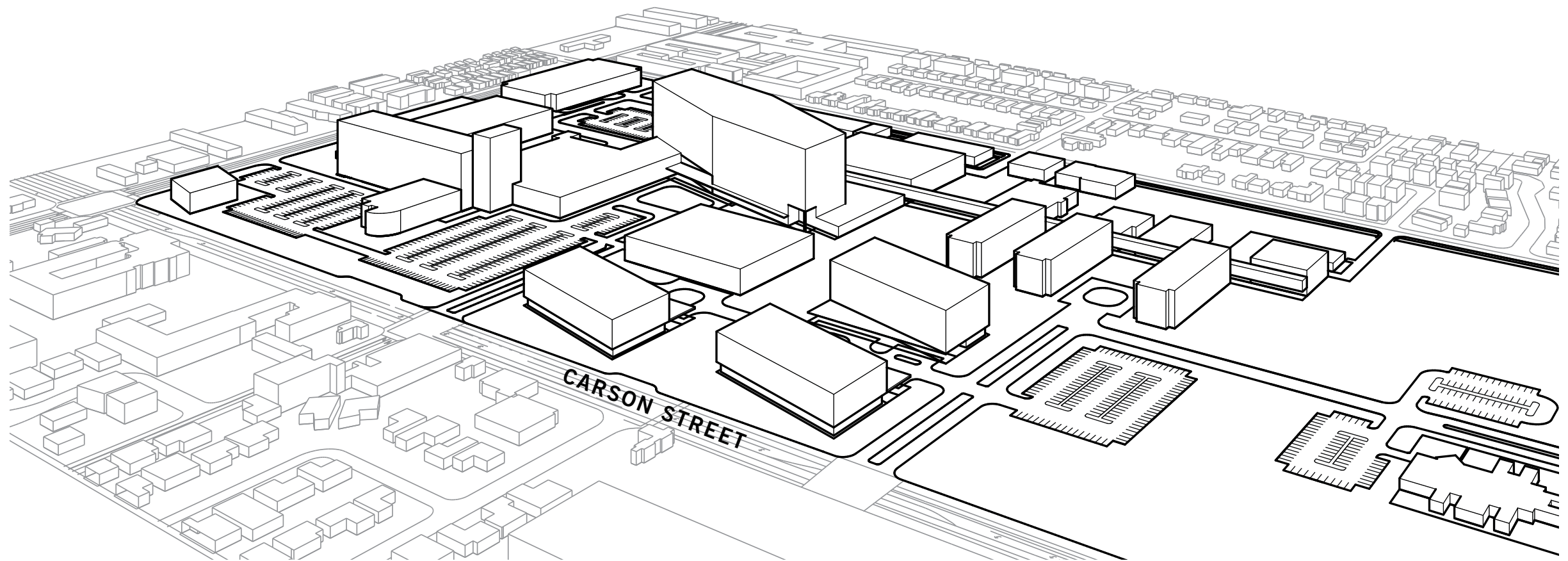
MASSING DIAGRAMS



The master plan attempts to consolidate the scattering of programs across the site, while also softening the built environment through the addition of gardens and plazas for patients, staff and public. The New Hospital Tower and Outpatient facilities are rotated off of the north/south city grid to better align with the appropriate solar orientation maximizing the amount of natural daylight that penetrates the building. Although larger in size, the new buildings are scaled appropriately for the surrounding community. Articulation in the building mass through ground floor arcades and covered pathways offer a domestic scale and humane quality to the campus architecture.



MASSING DIAGRAM LOOKING SOUTHWEST

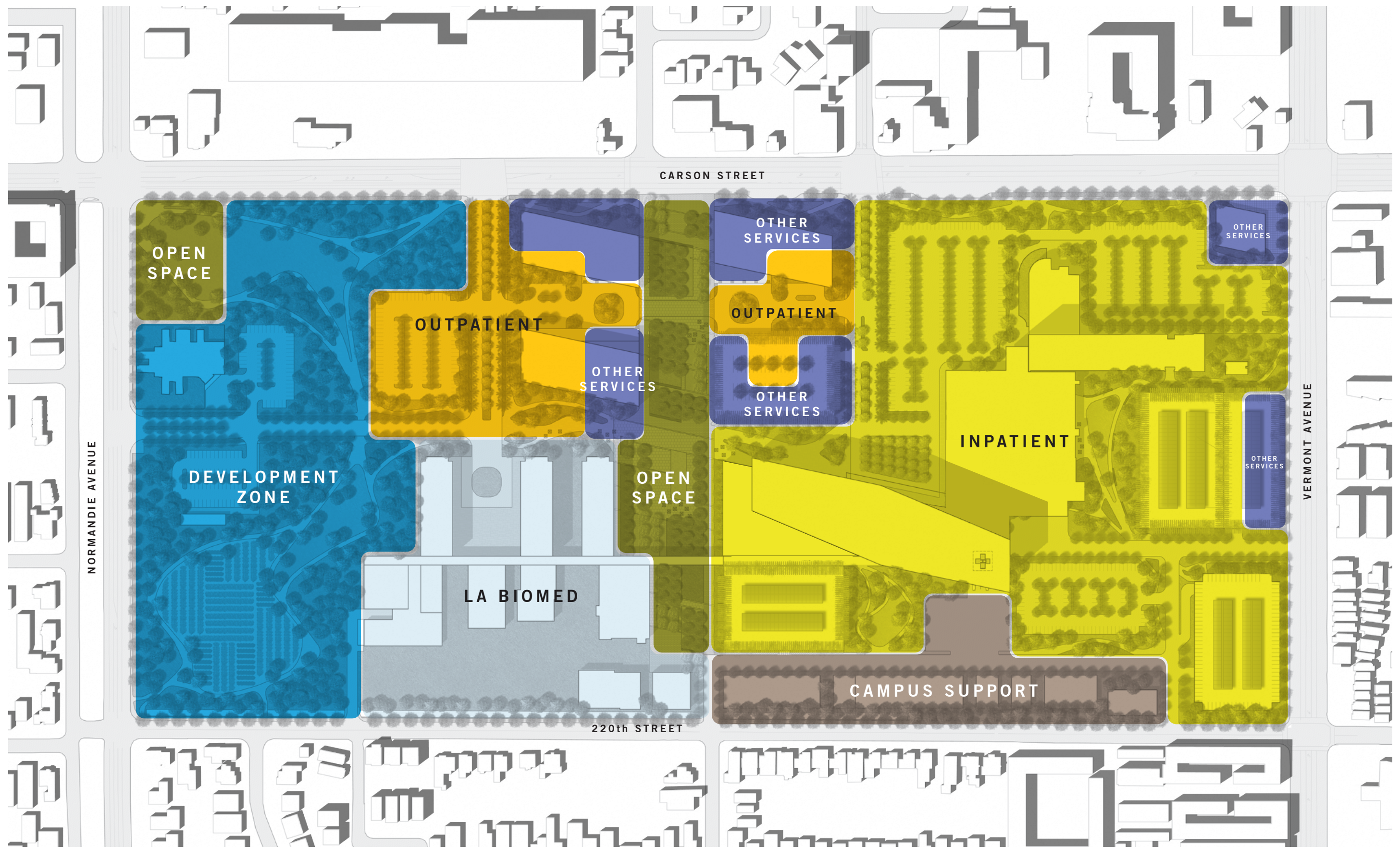


MASSING DIAGRAM LOOKING SOUTHEAST

CAMPUS USE AREAS



The adjacent plan shows the various campus use areas that divide the functions of the campus throughout the site. New Inpatient Services are organized near the center of the campus connected to the New Surgery and Emergency Room Building. Outpatient Services and “Other Services” are aligned along Carson Street. LA BioMed is consolidated to form a small campus within the larger campus. The west side of the campus is cleared and becomes available for future development. Campus Support buildings and services are grouped near the south of the campus facing inward, away from residential zones.



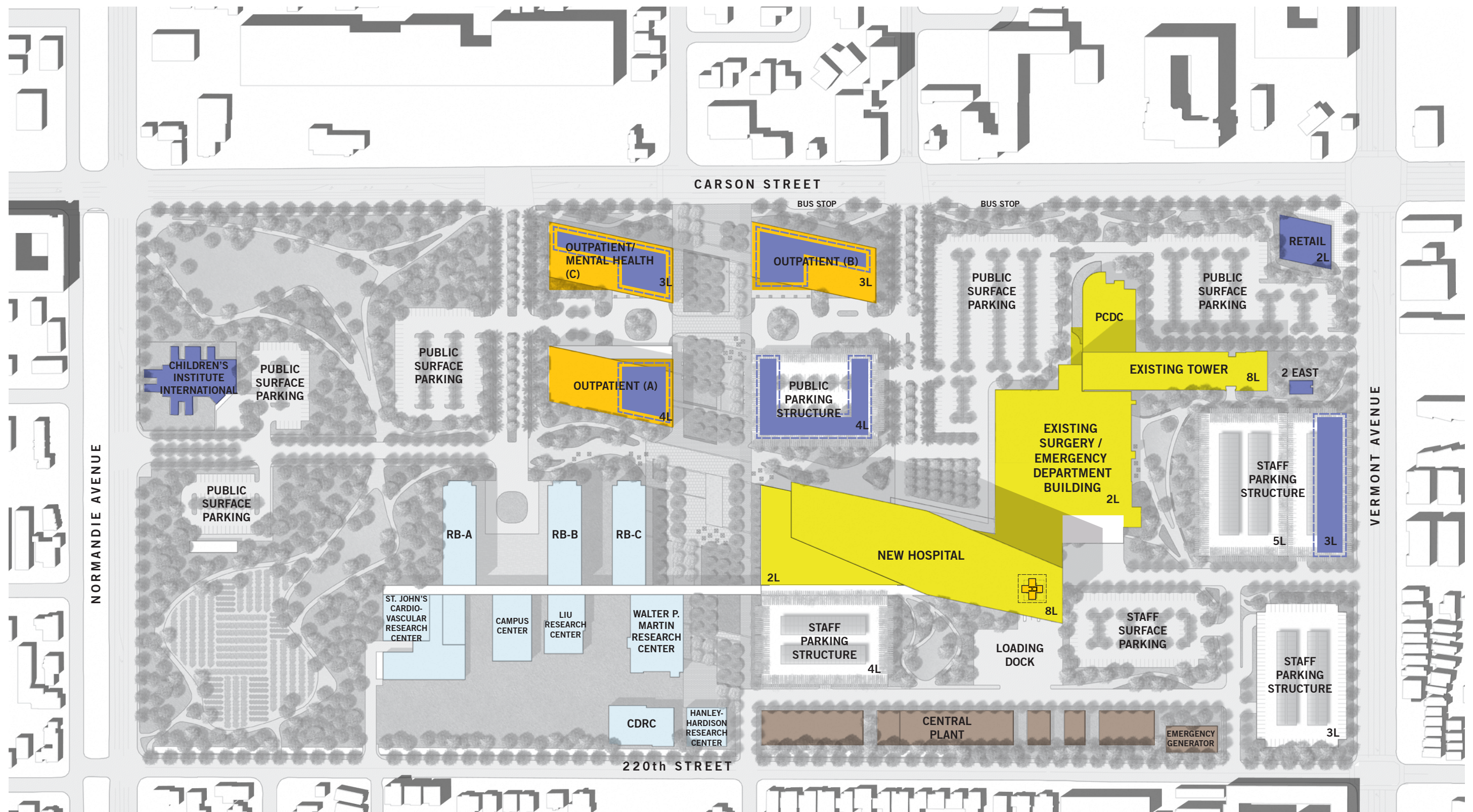
CAMPUS USE AREAS PLAN



PROGRAM PLAN



The adjacent plan shows a more detailed configuration of the major campus functions. Hospital functions will be consolidated into new buildings. The diagnostic and treatment functions of the hospital are located in the first hospital floor connected to a bed tower above. The Existing Hospital Tower will be retrofitted with spaces to support the new hospital. The Outpatient Buildings will include spaces for “Other Services” on the ground floors of each building. These spaces will take advantage of their prominent Carson Street frontage.



LEGEND

INPATIENT

CAMPUS SUPPORT

OUTPATIENT

LA BIOMED

OTHER PROGRAM

PROGRAM PLAN

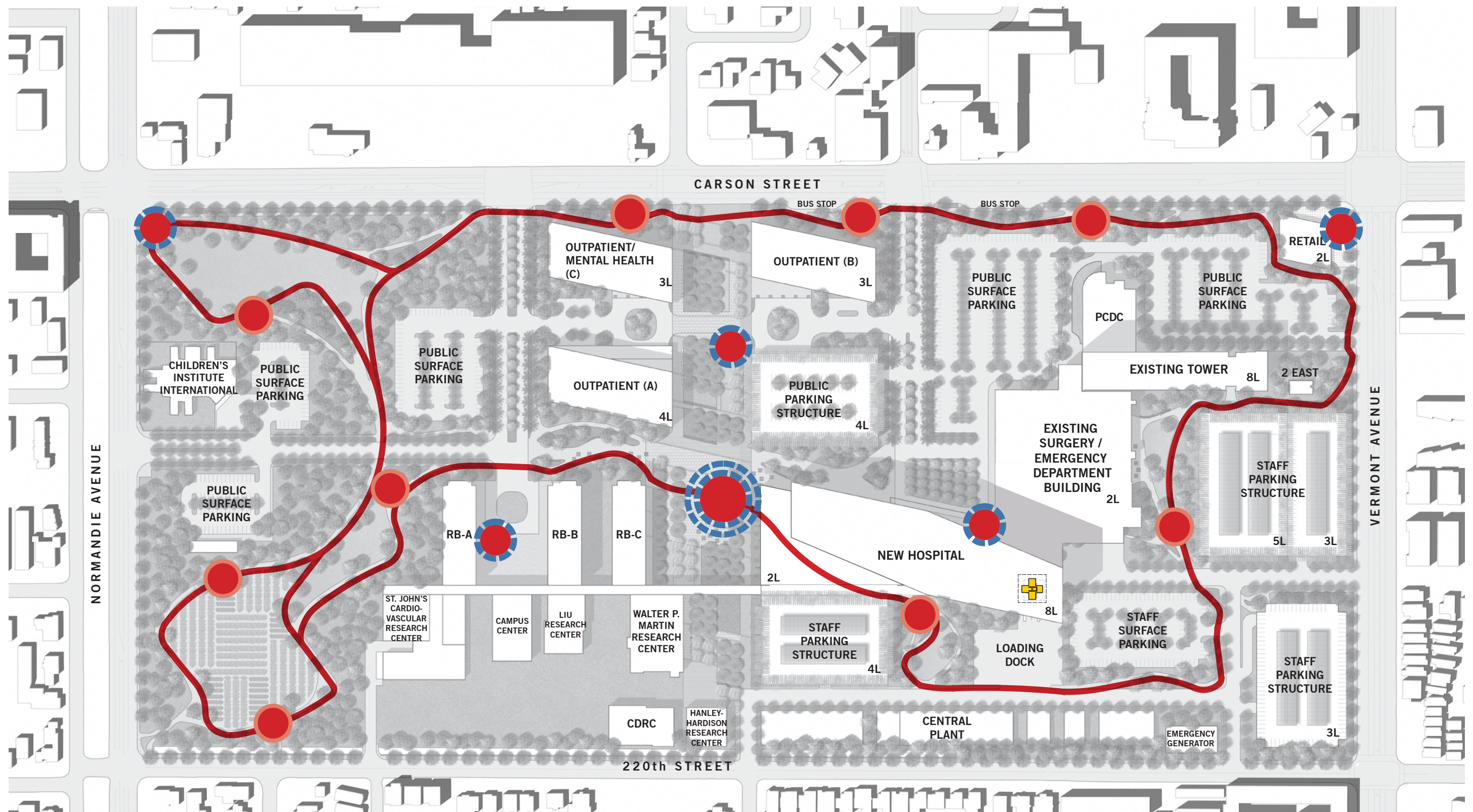


PUBLIC ART PLAN






Artistic and cultural resources are key elements of the future Harbor-UCLA Medical Center which can reflect the campus' healthcare, medical education and research mission. Art improves the quality of the built environment, it animates and humanizes spaces and draws people into them. Art may be therapeutic, beautiful, fun or thought provoking as it reflects and informs the heritage and character of the campus and community. Art can assist in revealing that which is special about the Harbor-UCLA Medical Center Campus and contributes to a sense of place.

Implementation of the master plan should incorporate a program of design, visual, performing, literary, and community arts. Each project is to follow the County of Los Angeles art policy that provides for civic art in capital improvement projects. The County of Los Angeles Civic Art Program integrates the skills of artists into capital improvement and major development projects, enhancing the County of Los Angeles for those who live here now and contributing to the creation of a legacy for generations to come. The County of Los Angeles Civic Arts Commission, Clinical Staff and Hospital Administration should be involved in identifying the range of situational, spatial, aesthetic, and healing opportunities that art as a modality and physical presence might serve for each project under the master plan. Planning for the use of art should take into account successful case studies that demonstrate how healthcare, arts and medicine art intrinsically related. According to the National Endowment for the Arts (source: the NEA website, April 2012), http://www.nea.gov/resources/accessibility/artsnhealth_top.html, "The Arts in Healthcare is an international movement that works to infuse the full spectrum of the arts into healthcare settings, including design, visual, performing and literary arts, resulting in programs and healthcare environments that are welcoming and uplifting for caregivers, patients, their families and visitors." Best practices "encompass a broad array of approaches that take place in both inpatient and outpatient settings including hospitals, rehabilitation centers, hospices, mental health facilities, community health centers, nursing and convalescent homes, assisted living facilities, and private practices." The National Endowment for the Arts' Office for Accessibility has compiled some examples of outstanding arts programs from around the country to encourage and assist the development of similar activities. They are available in a November 2008 report at: <http://www.nea.gov/resources/accessibility/Arts-and-Healthcare-Best-Practices.pdf>.



PUBLIC ART PLAN

-  LANDMARK ART INSTALLATION
-  IDENTITY ART INSTALLATION
-  DISCOVERY ART INSTALLATION



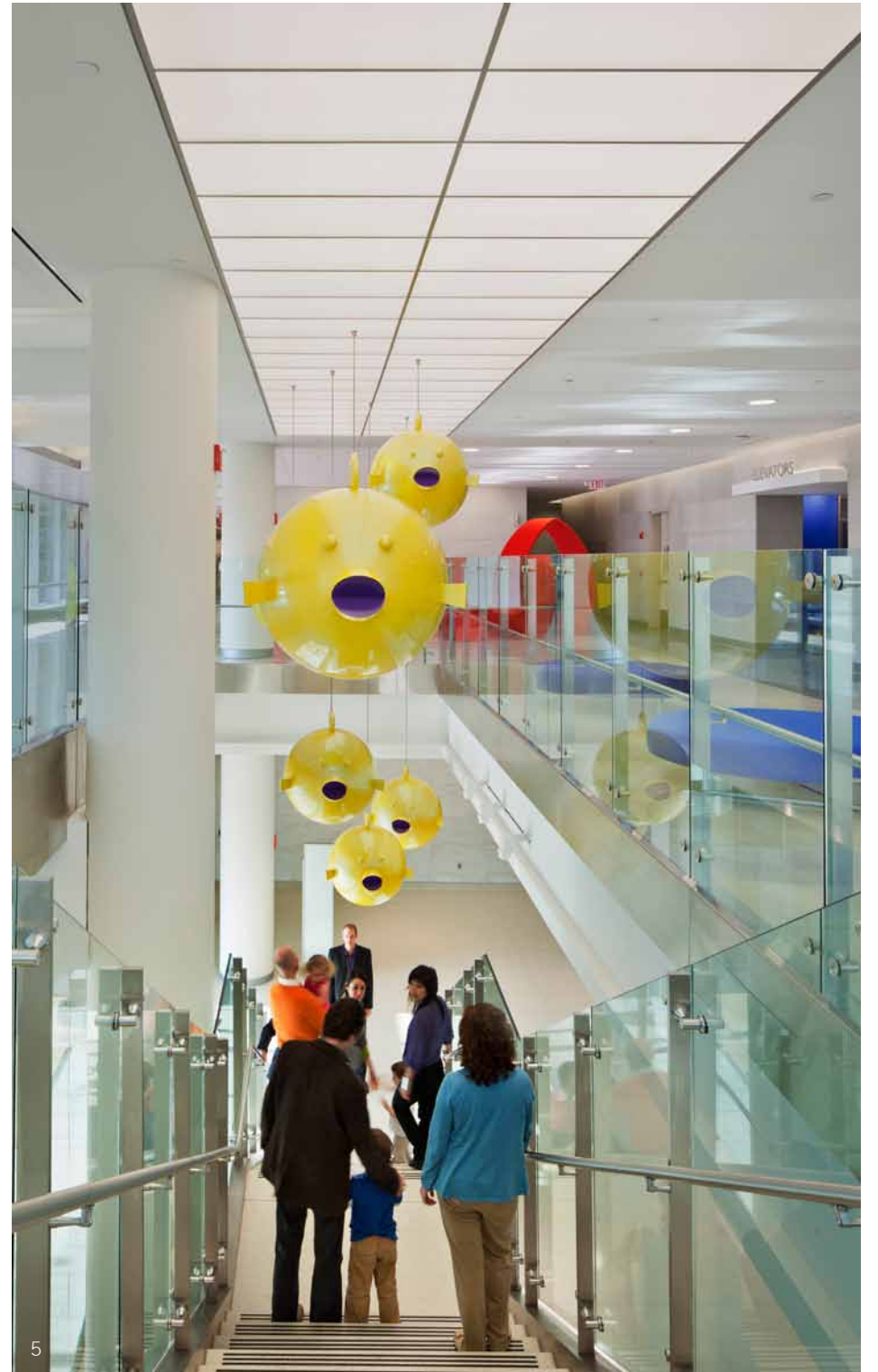
For the purposes of the master plan, Art includes, but is not limited to, sculpture, murals, portable paintings, earth works and water works, neon, mosaics, photographs, prints, film, sound, video, and combinations or forms of media and new genres, plus campus fixtures such as grates, street lights, seating, and other design enhancements.

The Arts Program shall engage and consider all campus users. Art can be within the environment itself with patients and families interacting as observers and as active patient therapy. An Arts Program can result in positive results including reducing patient, family and staff stress, lowering patient's symptomatic distress, increased patient's pain tolerance and shortened length of hospital stay. Campus visitors can benefit by art's part in the creation of successful and engaging public spaces, supporting way-finding, and providing opportunities for education and learning. Public art on the campus also fosters positive community identity and strengthens connections of the campus to the community.

The site plan on the previous page identifies multiple exterior potential sites for permanent public artworks including major commissions of outdoor sculpture. The main pedestrian plaza area in the center of the campus can also be utilized for temporary installations and performances. There are also many other opportunities across the site, and both inside and outside buildings, for art glass, terrazzo floor design, tile mosaic murals, artist-designed seating, video, light based artwork, etc. Within the various areas of the campus, the guiding principles will be expressed in different ways, based on the needs and interests of the users. The following are "creative directions," in the sense that they will inform the way an Art Program is developed for different areas throughout the campus.

- Thoughts and feelings to be communicated through art.
- Where possible, patients and families should be included in the process of art selection and integration.
- Celebrate renewal and change.
- Be pervasive, interactive and cross mediums.
- Express a shared humanity.
- Support a sense of community, family, and the cycle of life.
- Reflect moments of revelation, beauty and serenity.

- Art is experienced in unexpected places and in unexpected ways.
- Evoke strength, the power of the human spirit, the capability of the human intellect and the limitlessness of human ingenuity.
- Promote calm, peace, comfort, and confidence.
- Reveal beauty in a myriad of ways, in a variety places and through many different faces.
- Express a sense of perspective, invite introspection
- Bring forth smiles, pleasure and the joy of life.
- Explore the mysteries of how science, technology and people combine to advance healthcare knowledge.
- Reflect holistic wellness of mind, body and spirit.
- Create an identity and a sense of place.
- In parking areas and main campus entrances provide a positive reception where visitors are welcomed first and foremost, and then directed.
- In public lobbies highlight the presence of space, light, color and transformation.
- Use art to build anticipation for the discovery of more to follow in the interior spaces.
- Adult and view gardens to be carefully designed according to the latest in healing garden research and embodying Harbor-UCLA's holistic approach to wellness for everyone on campus offering a source of curative respite to patients, visitors, families and staff.
- Views of rooftops and parking structure top levels could be enhanced by site-specific commissions seen from above and at a distance.
- Primary interior spaces, including lobbies and reception to provide each entry with a unique character that is appropriate to the users and feels welcoming, warm and inviting.
- Hospital patient rooms to include capacity for patients and family to influence their environment. An enormous variety of opportunities can be available, including personal content, interactive works, and the possibility of creating artwork.
- Staff areas to also include capacity for users to influence their environment.



1,2) Art Glass in Corridor; © Artist: Gordon Huether; St Joseph's Hospital and Medical Center, Neuroscience Tower; Phoenix, Arizona; Architect: Perkins+Will; Photo: Delasso/Visus, LTD.

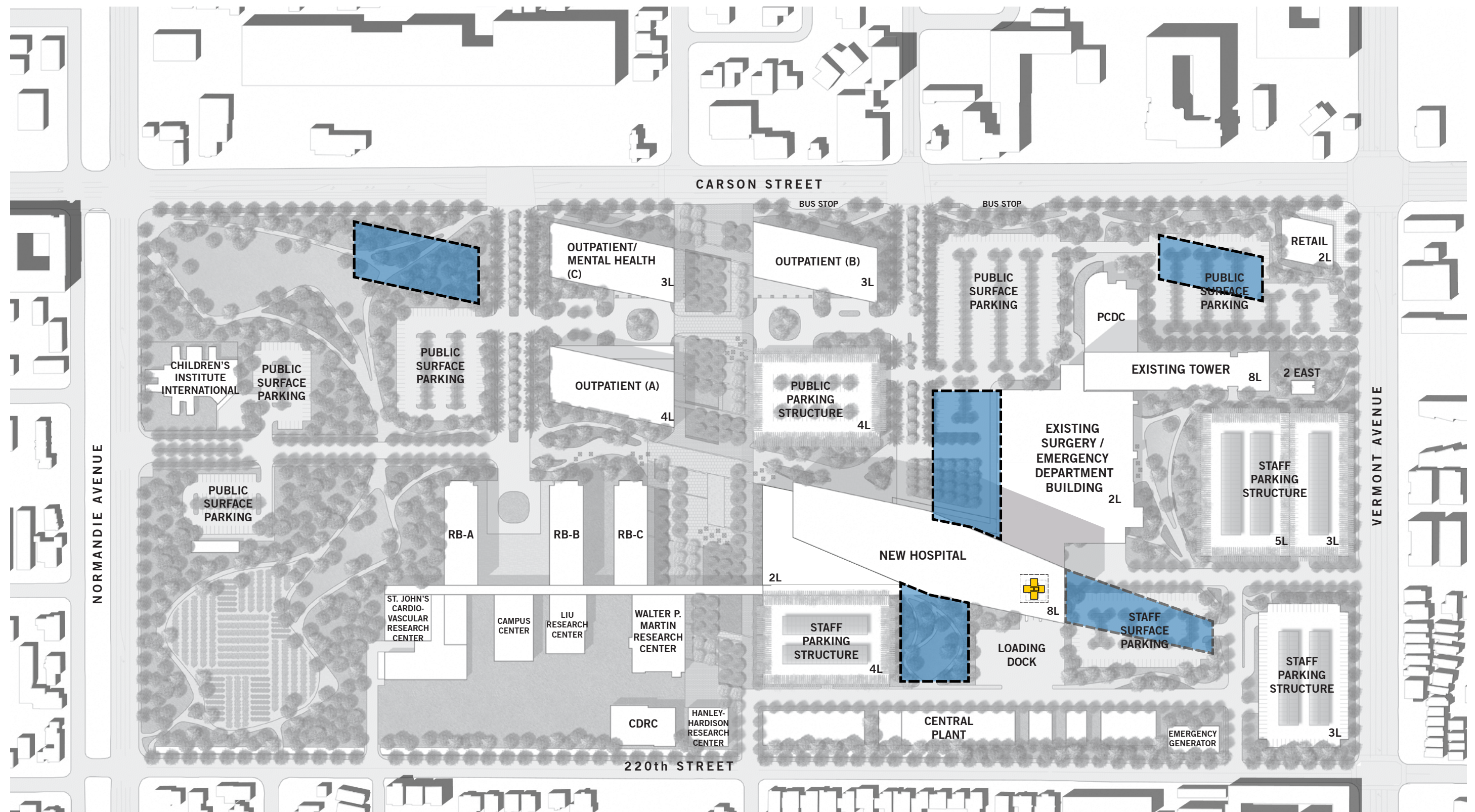
3) Robert Israel; *Cow Jumping Over The Moon*, 2012; Curator: Nancy Rosen, Nancy Rosen Incorporated. Photo: Eduard Hueber, Arch Photo, Inc.; Johns Hopkins Hospital, Charlotte R. Bloomberg Children's Center; Baltimore, Maryland; Architect: Perkins+Will
4) Curtain Wall Color and Glass Collaboration with Artist Spencer Finch; 2012; Curator: Nancy Rosen, Nancy Rosen Incorporated; Johns Hopkins Hospital, Charlotte R. Bloomberg Children's Center; Baltimore, Maryland; Architect: Perkins+Will

5) Robert Israel; *School of Puffer Fish*, 2012; Curator: Nancy Rosen, Incorporated. Photo: Eduard Hueber, Arch Photo, Inc.; Johns Hopkins Hospital, Charlotte R. Bloomberg Children's Center; Baltimore, Maryland; Architect: Perkins+Will

FUTURE HEALTHCARE EXPANSION OPPORTUNITIES

Although the campus is presently programmed for a capacity of 445 inpatient beds and over 300,000 square feet of outpatient clinics, it is understood that in the ever-changing healthcare environment, additional beds or other functions may need to be accommodated in the future. Expansion of inpatient and outpatient space, sharing common treatment and diagnostic functions, must be accommodated in the future.

Open areas are reserved around the new Hospital building to accommodate future expansion beyond the 2030 master plan planning horizon. Further, an opportunity to “land bank” the west side of the campus was realized as planning options were explored. This approach identifies major open areas that would remain available for future development. The County could later determine the best use based upon future demands for usable area. These issues were considered in the design, analysis, and evaluation of the planning options developed during the master planning process.



FUTURE BUILD-OUT PLAN

 FUTURE BUILDING

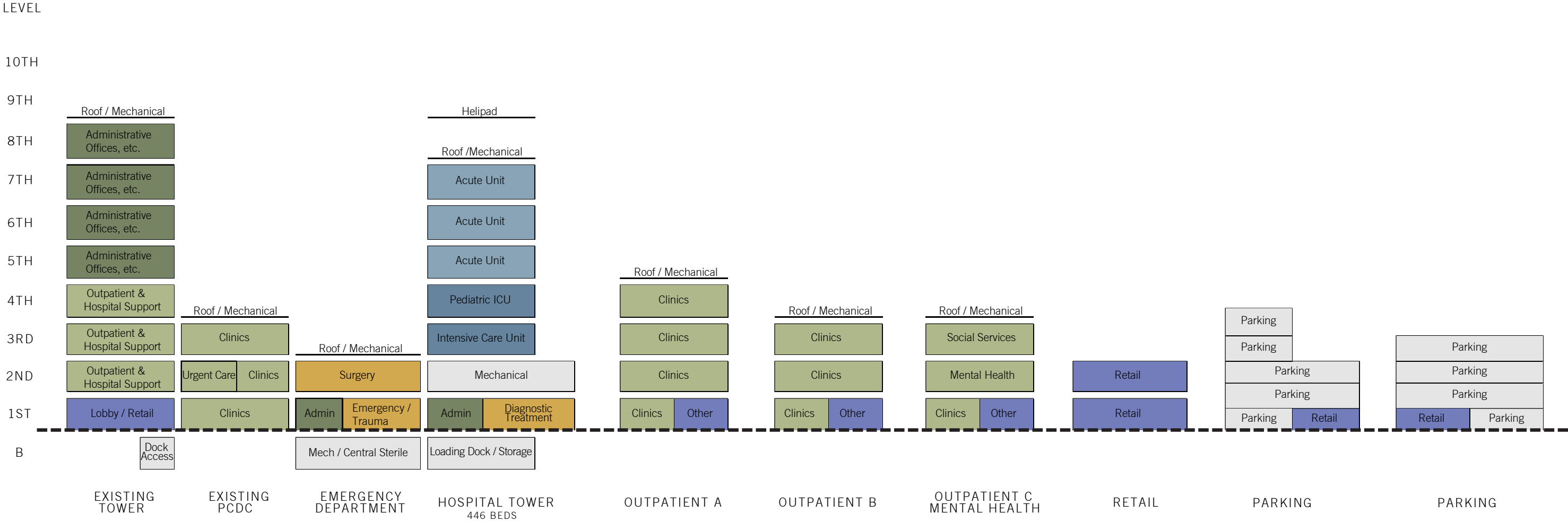


STACKING DIAGRAM



The master plan programming includes a new Hospital Tower for 446 beds, connected to the Existing Emergency Department, the Existing PCDC (Primary Care and Diagnostic Center) and the Existing Hospital Tower. The Existing Hospital Tower will not be able to function as an inpatient facility past January 2030. For the master plan we intend to reuse the Existing Hospital Tower to accommodate Outpatient and Hospital support and other programming as shown in the stacking diagram.

The detached structures include three Outpatient Clinical Buildings labeled A, B, and C. Each of these buildings has allocation space for other program uses such as retail, or other expanded programing such as community support functions. The stacking diagram is illustrative of the organization of the programing based on the developed master plan. As future buildings get developed the distribution of the programming as shown in the stacking diagram will be revised as needed.



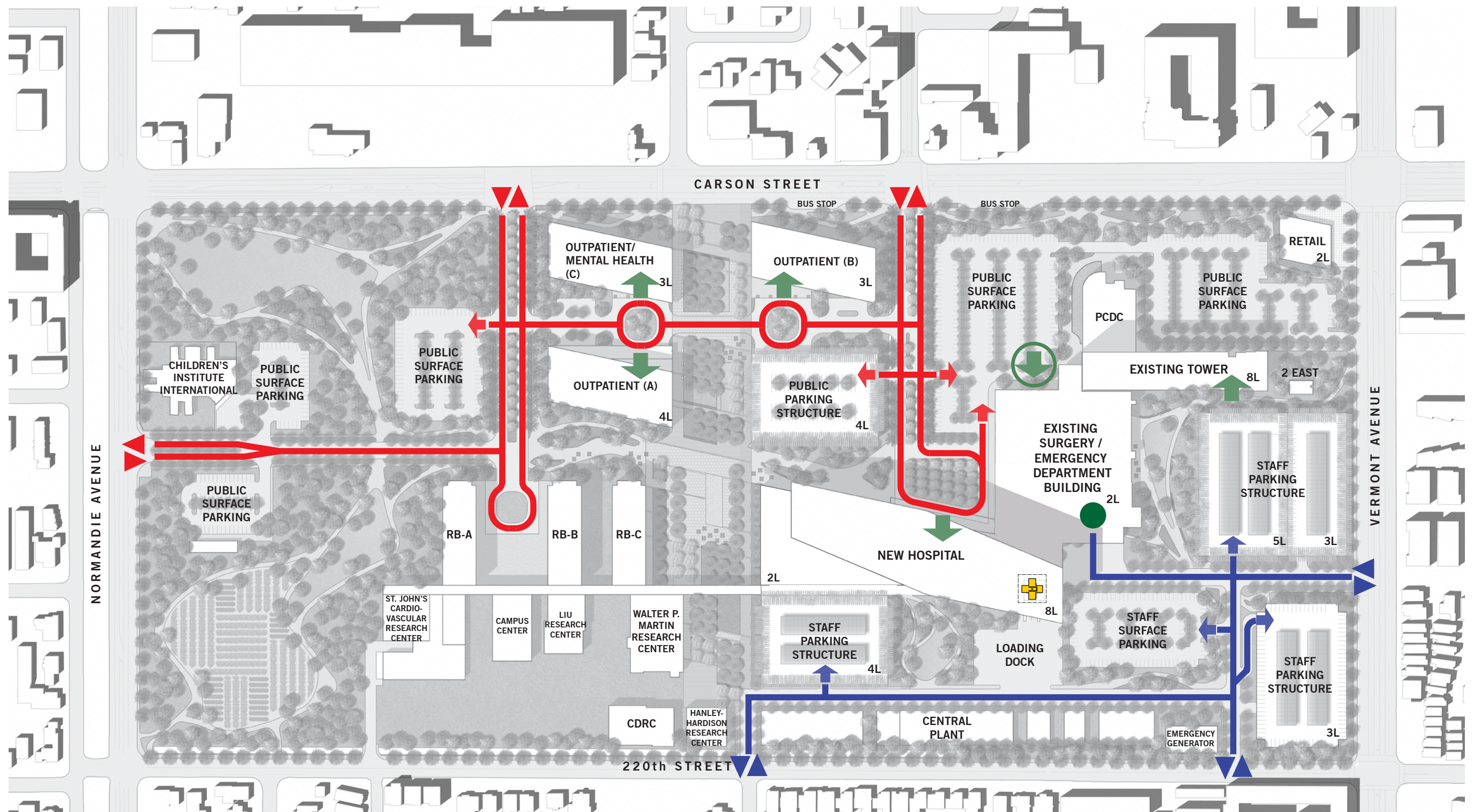
STACKING DIAGRAM

VEHICULAR CIRCULATION



The master plan seeks to separate the access and the on-site circulation and parking for staff and the public, with campus entries and staff parking near the southeast area of the campus, and access and parking for the public from Carson Street, on the north.

Access to the Harbor-UCLA Medical Center will be augmented with the addition of a signalized public entrance on Carson Street and one additional unsignalized staff entrance on Vermont Avenue. Sidewalk connections to the public transit system will continue to be provided, and on-site sidewalks will be added along the primary routes between the main parking areas and the primary Hospital and Outpatient buildings. Circular pick-up / drop-off loading zones will be provided at the main entrances to each of the Hospital and Outpatient buildings.



LEGEND

VEHICULAR CIRCULATION PLAN

- ▶ PUBLIC ENTRY/EXIT TO CAMPUS
 ▶ STAFF ENTRY/EXIT TO PARKING
 — PRIMARY PUBLIC VEHICULAR CIRC.
- ▶ STAFF ENTRY/EXIT TO CAMPUS
 ➔ MAIN BUILDING ENTRANCE
 — PRIMARY STAFF VEHICULAR CIRC.
- ➔ PUBLIC ENTRY/EXIT TO PARKING
 ➔ PUBLIC EMERGENCY ENTRANCE
 ● AMBULANCE EMERGENCY ENTRY

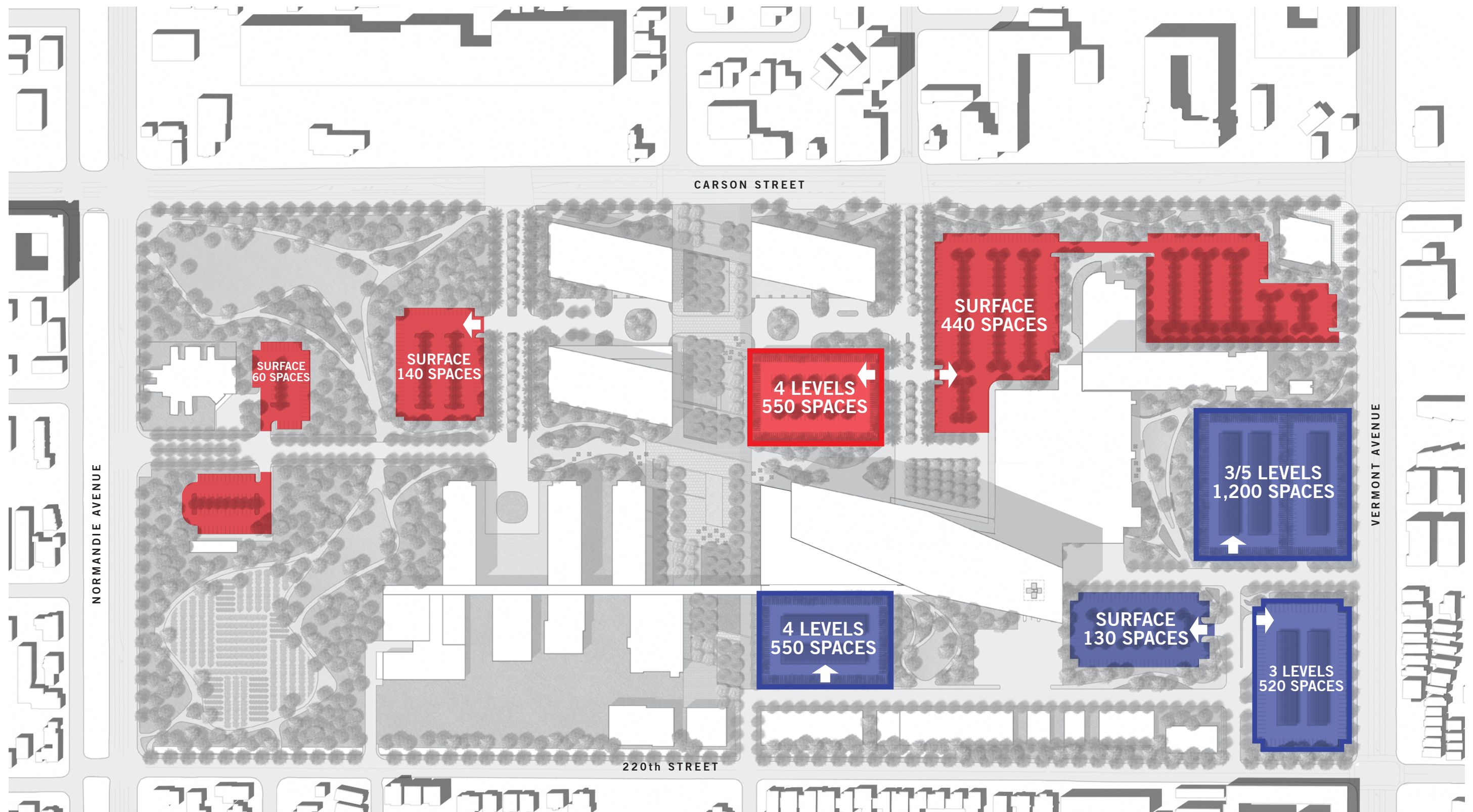


PARKING



The master plan concept provides reasonable walking distances from proposed location of the parking structures to destination points. The outpatient staff & physician user group will be farthest from their intended supply and will need to walk past visitor & patient parking supply on their way to and from their vehicles. Enforcement is the key to prevent outpatient staff & physicians from parking in the visitor & patient intended stalls. Monitoring will be required in all visitor & patient parking supply.

- This concept provides good vehicular connectivity and circulation to different zones, as well as surrounding streets. Still, a comprehensive signage and wayfinding package should be developed to aid visitors & patients in finding their ultimate destination and the parking supply intended for their use.
- The visitor surface parking, located nearest the new Emergency Department, is not adequate for the required Inpatient visitor & patient demand projections. The additional surface stalls, in the northeast surface lot, are too far for hospital visitors to park. Therefore some stalls within the parking structure located adjacent to the Outpatient buildings should be set aside for Emergency Department use.



LEGEND

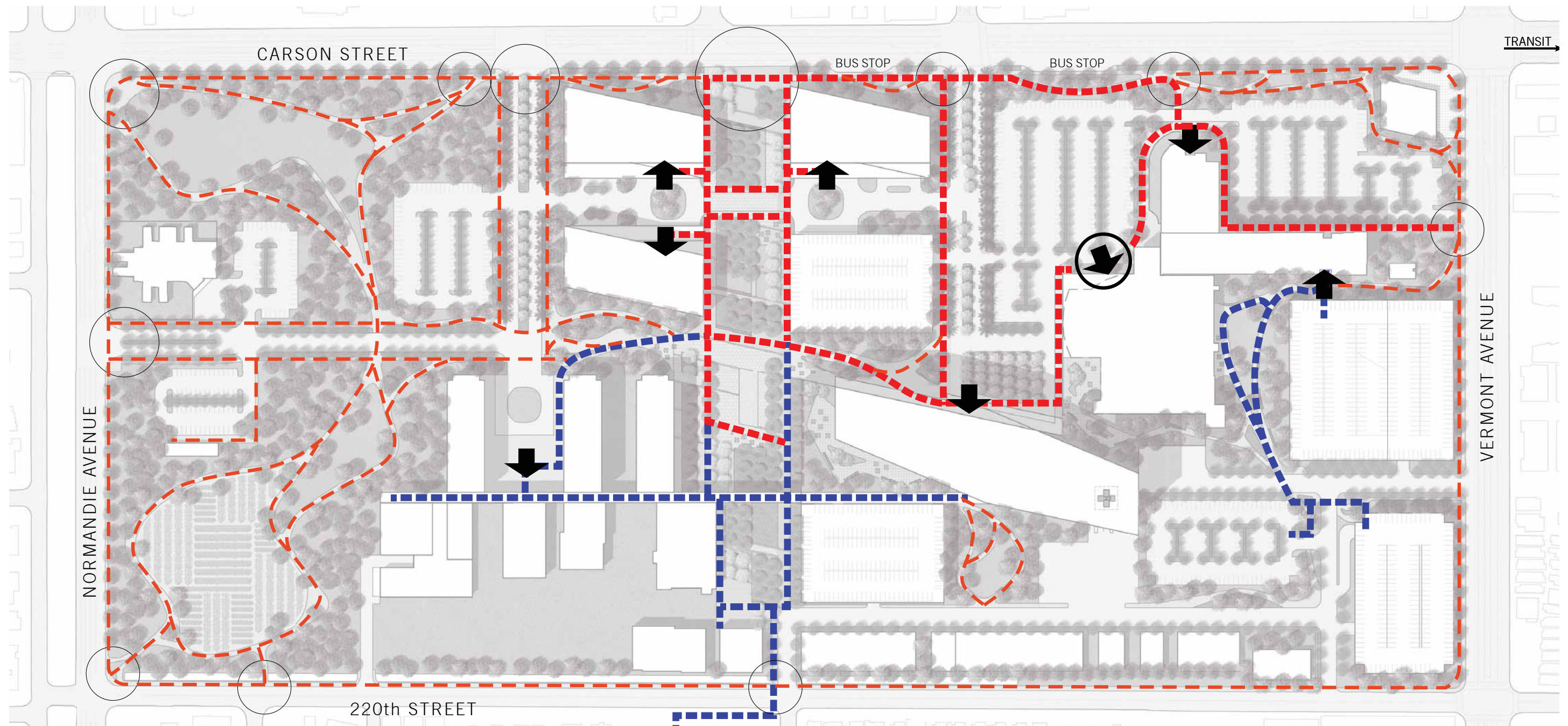
- VISITOR / PATIENT PARKING
- STAFF PARKING

PARKING PLAN



PEDESTRIAN CIRCULATION


A continuous pedestrian circulation network will ensure campus connectivity and shared use by all. Several north/south walks and promenades connect the heart of the campus with the public edge along Carson Street, while a comprehensive network of walks and trails direct pedestrians east/west through campus. The circulation hierarchy will allow for direct access from parking areas to building entries with a secondary system connecting parks, courtyards and plazas that allow for a more leisurely stroll through campus. Paving types should not be dictated by this circulation system, rather by the spatial qualities and programmatic needs of each space.



LEGEND

- | | | | |
|--|---------------------------|--|---------------------------------------|
| | MAIN BUILDING ENTRANCE | | PRIMARY PUBLIC PEDESTRIAN CIRCULATION |
| | PUBLIC EMERGENCY ENTRANCE | | PUBLIC PEDESTRIAN CIRCULATION |
| | CAMPUS ENTRIES | | PRIMARY STAFF PEDESTRIAN CIRCULATION |



A blue-tinted architectural rendering of a park-like campus setting. In the foreground, a man in a suit is on the left, talking on a mobile phone. A paved path leads into the distance where a man and a woman are walking hand-in-hand. To the left of the path, a person is sitting on the grass, and two people are riding bicycles. The background is filled with large, mature trees and more people walking or sitting. The overall atmosphere is one of a vibrant, community-oriented outdoor space.

Creating a cohesive campus-like setting where collaboration between doctors, researchers, and the general public will further the medical center's reputation as a vital public service to the community of South Los Angeles

LANDSCAPE CONCEPTS

MASTER PLAN GOALS

The landscape master plan for the Harbor-UCLA Medical Center will strive to create a cohesive campus-like setting where collaboration between doctors, researchers, and the general public will continue the hospitals reputation as a vital public service to the South Bay community.

The goal of this master plan is to establish guidelines that will guide future development of open space throughout the campus in a manner that will collectively unify and reinforce the hospitals identity within the community. This will be achieved with three key strategies:

LANDSCAPE FRAMEWORK

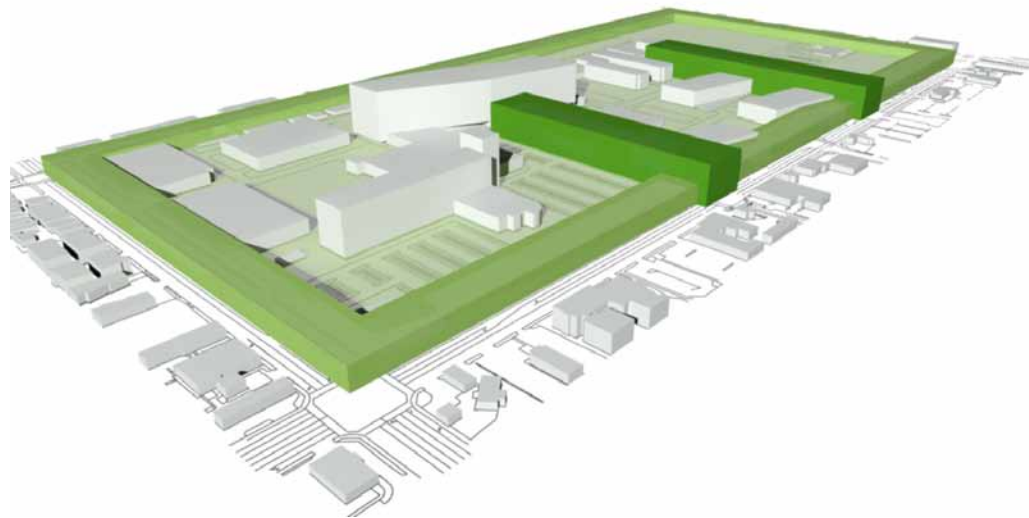
Establish a framework and spatial hierarchy system which organizes open space program around adjacent building uses, and connect these spaces with a pedestrian circulation network that clearly defines both visual and physical linkages throughout the campus.

ENVIRONMENTAL STEWARDSHIP

Utilize landscape as a medium to help reduce dependency on natural resources. This can be achieved by reducing water demands, capturing and cleaning stormwater runoff, and shading buildings to help reduce cooling demands.

QUALITY OF LIFE

Create outdoor spaces that can accommodate both active social gatherings and passive gardens which enrich the lives of both staff and the public. These spaces can provide a unique amenity that will maximize the opportunity for interaction between hospital staff and researchers while providing more intimate areas for contemplation and relaxation. Further building on the hospital's goal of preventative healthcare, the campus can provide areas for exercise which help maintain staff's endurance during long shifts and educate the public about the advantages of healthy lifestyles.



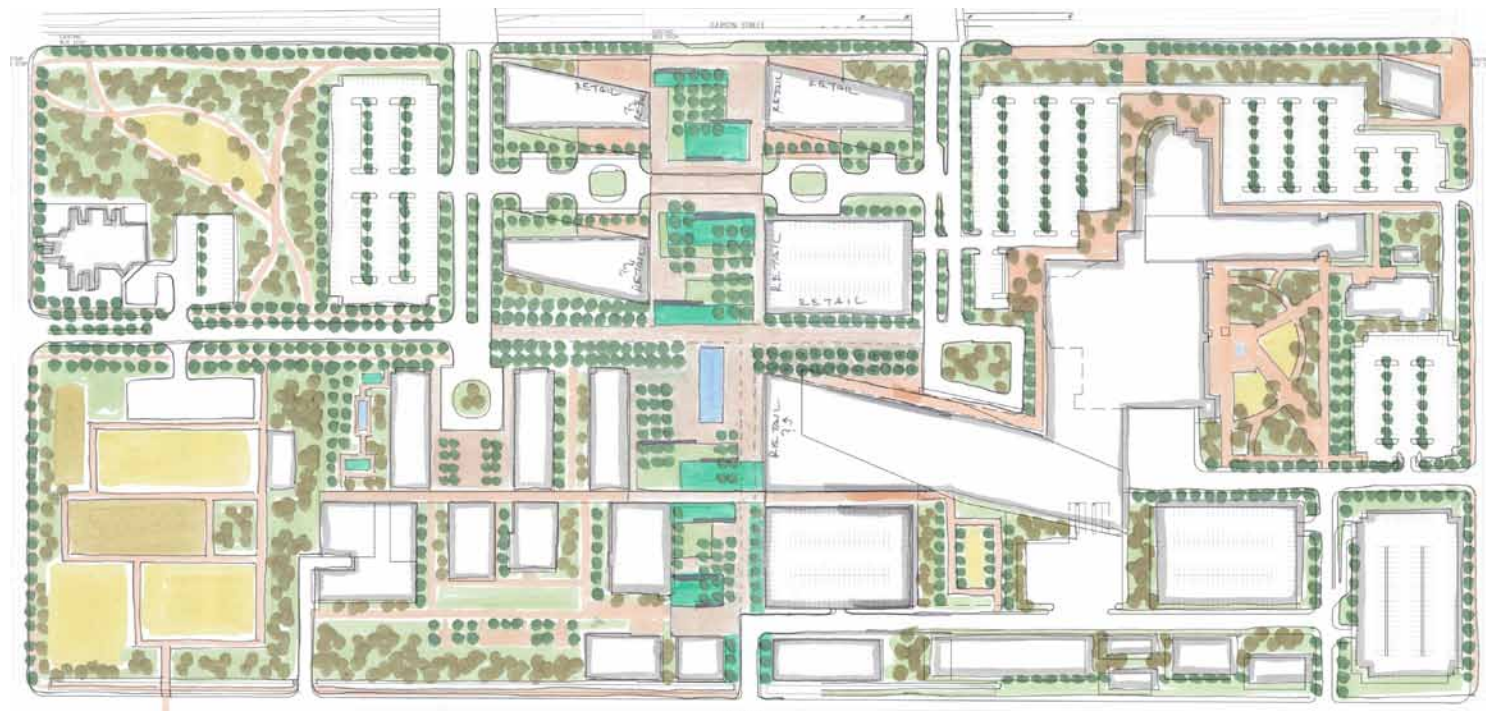
Vegetative Layering Diagram - Multiple layers of landscape help define the campus perimeter and clearly identify the main entries.

LANDSCAPE FRAMEWORK

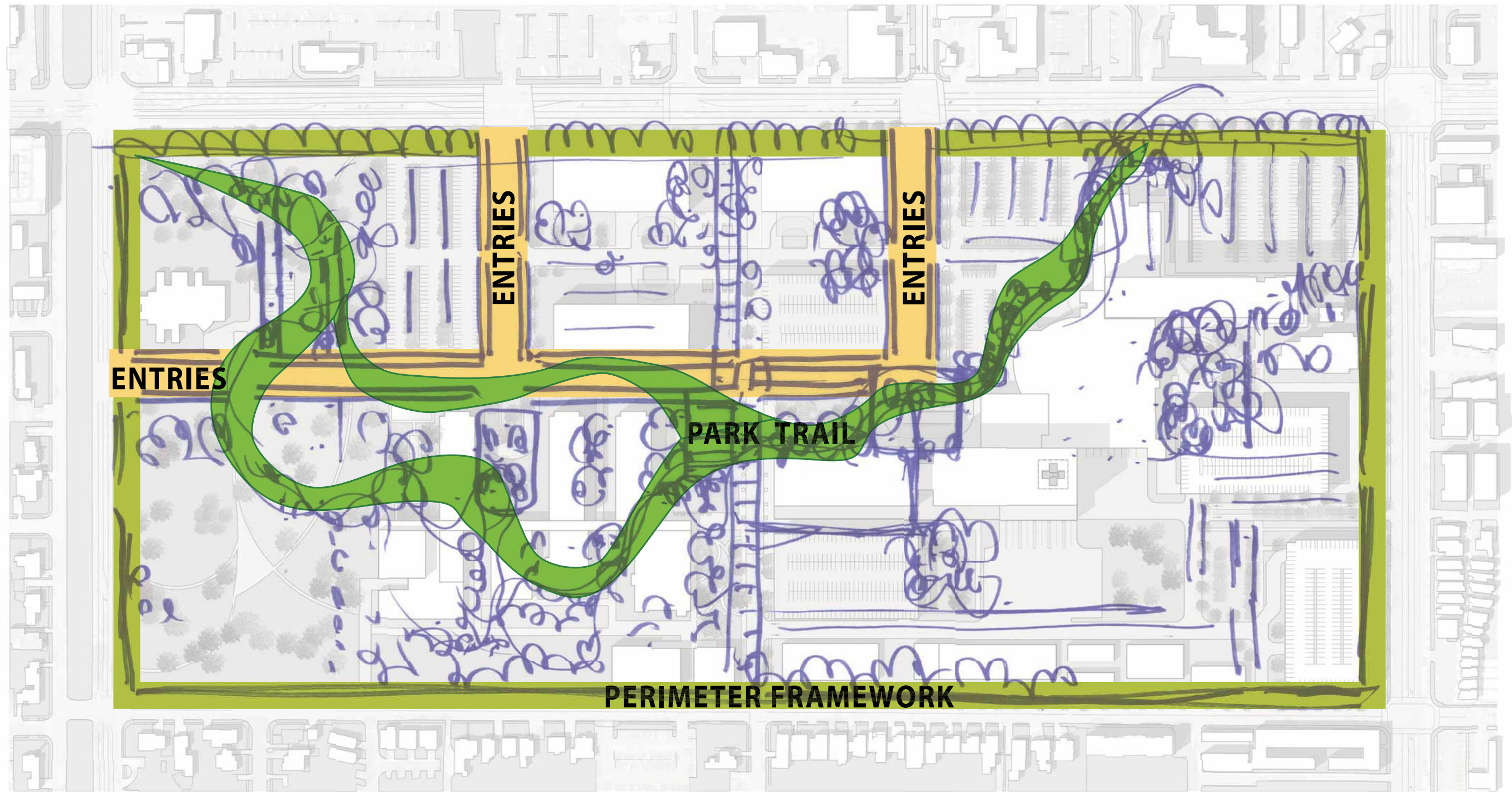
The existing campus lacks identity along Carson Street and has a poor visual connection to the surrounding residential community. Utilizing a vegetative layering strategy that clearly identifies the campus perimeter, entries, and interior open space the campus will begin to visually establish itself and provide a seamless visual connection to the adjacent community.

The campus periphery should be lined with a consistent, 35' to 45' high evergreen / semi-evergreen tree which has an upright formal character that maintains views into the campus from surrounding streets. The next layer will consist of highlighting the two main entries off of Carson Street by using a mix of palm trees and flowering deciduous trees. The palm trees will be the tallest trees on campus and establish a clear visual gateway while the flowering canopy trees provide a needed pedestrian scale. The final layer of landscape will consist of courtyard gardens and plazas that provide a diverse and appealing spatial quality throughout the site.

This strategy of using medium sized trees along the perimeter that are highlighted by taller trees at the entry will help the campus seamlessly rest within the surrounding residential community while maintaining its unique identity.



Preliminary landscape master plan development sketch.



ENTRIES

ENTRIES

ENTRIES

PARK TRAIL

PERIMETER FRAMEWORK





Continuous pedestrian paths that connects buildings, plazas, and courtyards



Informal park trails used for relaxation and exercise



Tree lined plaza with accent paving bands

LANDSCAPE PLAN

Utilizing a strong landscape framework and pedestrian circulation system, the proposed landscape master plan will provide a variety of open space courtyards, gardens, and plazas that will collectively define The Harbor-UCLA Medical Center. With over 20 medical centers throughout the Los Angeles area competing for top talent, this master plan will create a distinctive environment that will help attract doctors and researchers to this unique workplace setting.

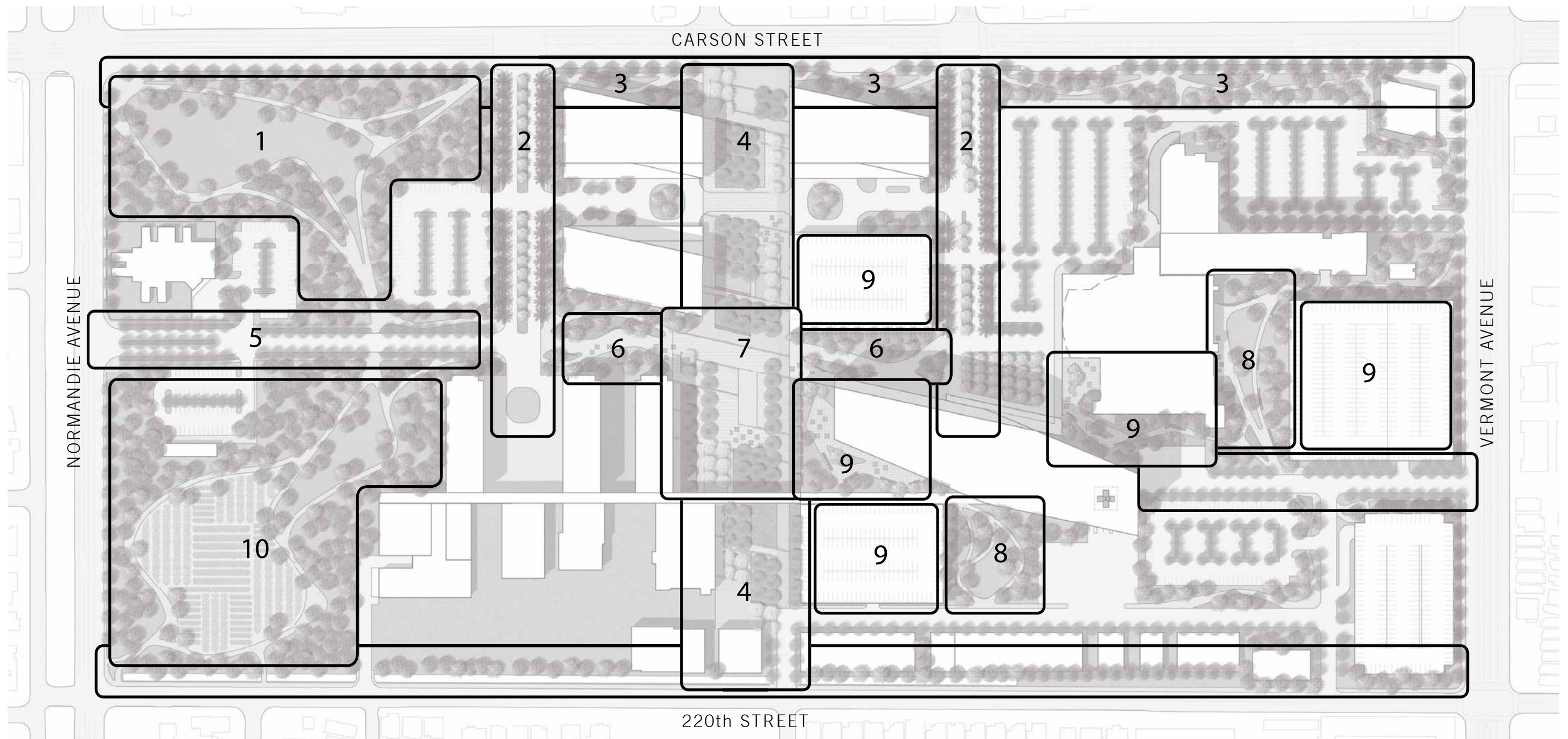
Serving as the ceremonial heart of the campus, the Central Garden Spine will attract staff and patients from the surrounding outpatient, research, and hospital buildings to relax and socialize in a lush garden setting. From garden benches to cafe tables, from shaded tree bosques to large open plazas, the central garden will offer a diverse experience.

Along the west edge of the campus lies a large park and fitness trail that will permeate throughout the campus providing a continuous circulation system that allows staff and guests to easily get to their destinations with little interruption by automobiles. This pedestrian trail will also connect buildings with shaded courtyards where staff can relax and decompress.



LANDSCAPE PROGRAM

1. WEST PARK
2. MAIN CAMPUS ENTRY
3. CARSON STREET LANDSCAPE EDGE
4. CENTRAL SPINE GARDENS
5. LA BIOMED ENTRY
6. PARK PLAZA
7. CENTRAL PLAZA
8. COURTYARD GARDENS
9. ROOF TOP GARDENS
10. EDUCATIONAL GARDEN



CIVIL ENGINEERING CONCEPTS

DOMESTIC AND FIRE WATER SYSTEM

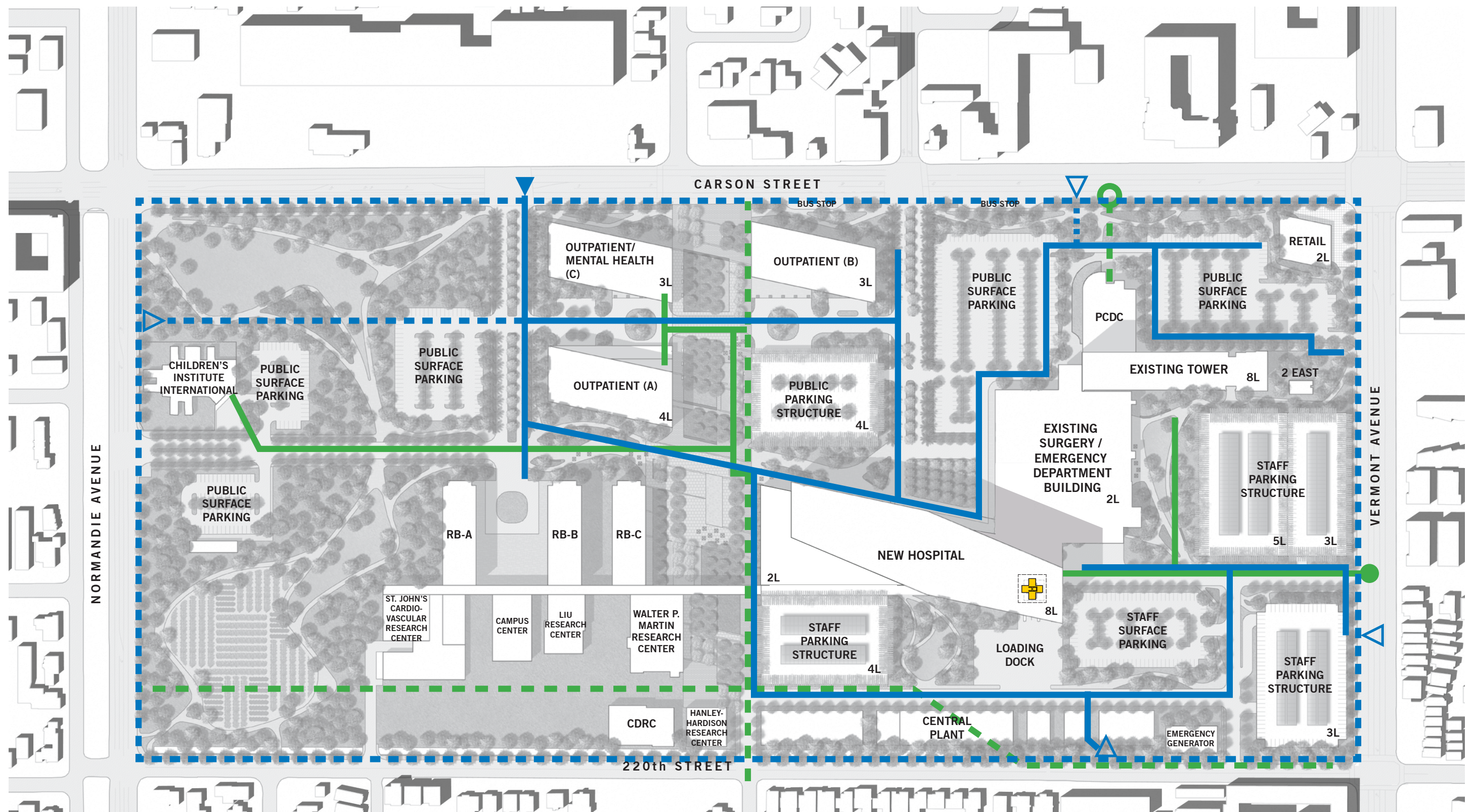
The ability to supply water is a function of both available resources and conveyance. As with the existing system, there are two water purveyors within the vicinity of Harbor-UCLA including the California Water Service Company's Rancho Dominguez District (CWS) and the City of Los Angeles Department of Water and Power (LADWP). It is anticipated that the two purveyors who currently provide water service to the campus, CWS and LADWP, will continue to do so as a primary provider of services and a secondary backup provider of services, respectively.

The proposed conveyance system will closely match the existing conveyance system and consist of a looped combined domestic and fire water network primarily consisting of 12-inch mains, generally located within the primary vehicular circulation areas. Existing pressures and flows indicate the ability to support future development on the campus.

As the system was overhauled recently after the connection to the LAWPD water main caused multiple system failures, the water pipe network can be phased over time to allow for replacement of the existing infrastructure with the development of the master plan. It is likely new connections to the CWS water system will be made at various locations off Carson Street, Vermont Avenue and 220th Street as entry points to the campus are developed.

RECLAIMED WATER

Reclaimed Water is currently not provided to the existing campus and the irrigation system is currently being served from the CWS municipal domestic water system. Future opportunities for potential water sources for irrigation use include continuing with the municipal potable water supply, a future municipal recycled water supply, an on-site integrated storm water management system, and/or an on-site recycled water system.



LEGEND

- | | | | |
|--|----------------------------|--|-------------------------------|
| | EXISTING SEWER SYSTEM | | PROPOSED POINT OF CONNECTION |
| | PROPOSED SEWER SYSTEM | | EXISTING WATERLINE |
| | EXIST. POINT OF CONNECTION | | PROPOSED WATERLINE |
| | | | EXISTING WATER POINT OF CONN. |
| | | | PROP. WATER POINT OF CONN |

PARKING PLAN



With the development of the master plan, elimination of the use of the municipal water supply system for irrigation is desired. A combination of water conservation measures described in the landscape section, and an integrated storm water management system with a future ability to use either a municipal recycled water supply and/or on-site recycled water system is anticipated.

Recycling efforts of County of Los Angeles Sanitation Districts (LACSD) and West Basin Municipal Water District (WBMWD) are currently concentrated outside the immediate vicinity of the medical campus with no future plans for extending their system to the vicinity of the project.

SEWER

Like water, the ability to supply sewer is a function of both available resources and conveyance. As with the existing system, County of Los Angeles Sanitation Districts (LACSD) will continue to be the primary provider of sanitary sewer service to the campus. In addition, it is anticipated the trunk sewers that exist around the perimeter of the project and through the medical campus will remain with the development of the master plan.

The proposed sanitary sewer conveyance system will closely match the existing conveyance system and consist of a network of sewer pipes generally located within the primary vehicular circulation areas. Existing capacities indicate the ability to support the future development on the campus.

As with the existing system, we anticipate approximately 75 percent of the existing campus including new hospital, LA BioMed campus and proposed outpatient clinics will continue to be served by an on-site sewer network that discharges to Sanitation District Joint Outfall D, Unit 8 trunk sewer in the old Meyer Street Right-of-Way through a single point of connection. The existing connection can be used until such time a new connection might be warranted with development of the central plant and back of the house operations at the campus. The remaining 25 percent of the campus area, including the PCDC, existing tower and Surgery and Emergency Room Replacement Project will likely still continue to be served by sewer mains in Vermont Avenue, 220th Street, and Carson Street.

STORM DRAIN

As with the other utilities, proposed drainage conveyance systems and hydrologic boundaries will closely match the existing conditions. The backbone of the proposed drainage system will continue to be the County of Los Angeles 208th Street Storm Drain which runs through the Medical Center in a 15-foot wide easement. This storm drain is an 8-foot high by 4-foot wide reinforced concrete box culvert (RCB). A new connection may or may not be proposed.

It is generally anticipated with the increase in previous area, the calculated peak flow of the future development will generally be less than the existing condition; in addition, any future site development will require compliance with the County of Los Angeles Low Impact Development (LID) standards for storm water management and is also a significant element of the proposed site sustainability approach.

As with the improvements made to the Harbor UCLA Medical Center for the Surgery Emergency Replacement Project, a portion of the new hospital might span the 208th Street Storm Drain. The hospital foundation will likely need to be designed and constructed in a manner that does not load the existing box culvert during construction or after completion unless a full removal and replacement is considered. Construction Drawings for the emergency/surgery replacement center specified a lightweight Styrofoam backfill over the existing RCB in traffic areas. We anticipate a portion of the 208th Street RCB may require similar treatments in traffic areas.

The County of Los Angeles determines the allowable amount of runoff that can enter its system based on historical records. It is likely that the flow rate allowed at connections to the County Storm Drains will be required to match the original system design flow rate. With the increase in pervious area, an integrated storm water management approach and the implementation of the County LID Standards, the requirements to detain flows to meet existing design flow rates will be minimized. Future non-County development (LA BioMed campus and current open space) should consider similar allowable peak flow attenuations.

STORMWATER MANAGEMENT

The County of Los Angeles Low Impact Development (LID) Standards Manual of 2009 outlines the requirements for stormwater management in the County. Specifically, the manual sets forth the criteria for stormwater treatment, hydromodification, and low impact development (LID). LID is a stormwater management strategy that aims to have developed site hydrology mimic undeveloped site hydrology. In addition, project sustainability goals including promoting harvesting urban runoff for irrigation, treatment, and infiltration are met with this integrated storm water approach.

The standard method for treating stormwater in the County of Los Angeles is through the application of LID Best Management Practices (BMPs). The LID Manual establishes a hierarchy of BMPs to be used for development sites as outlined below:

- 1. Infiltration BMPs
- 2. Storage and Reuse BMPs
- 3. Filtration and Biofiltration BMPs

A development site is required to capture and infiltrate or reuse the difference in volume during the 0.75-inch storm event between a developed site and the site in an undeveloped condition (i.e. 0 percent impervious) where technically feasible. In addition, a developed site is required to treat the entire 0.75-inch rainfall to remove urban stormwater pollution. These volume and treatment BMPs can be met by the same BMP or alternatively separate BMPs.

In addition to the LID requirements set for the LID manual, the County also establishes hydromodification requirements that require the difference in peak flow rate, flow velocity, total volume, and depth/width of flow for the 2-, 5-, 10-, 25-, and 50-year storm with several exceptions. One exception is that a proposed project would not add impervious area beyond what exists pre-construction. Since the campus is fully developed and highly impervious, the hydromodification requirement will likely not be applied to the campus redevelopment.

Bioswale / Vegetated Swale



Rain Gardens



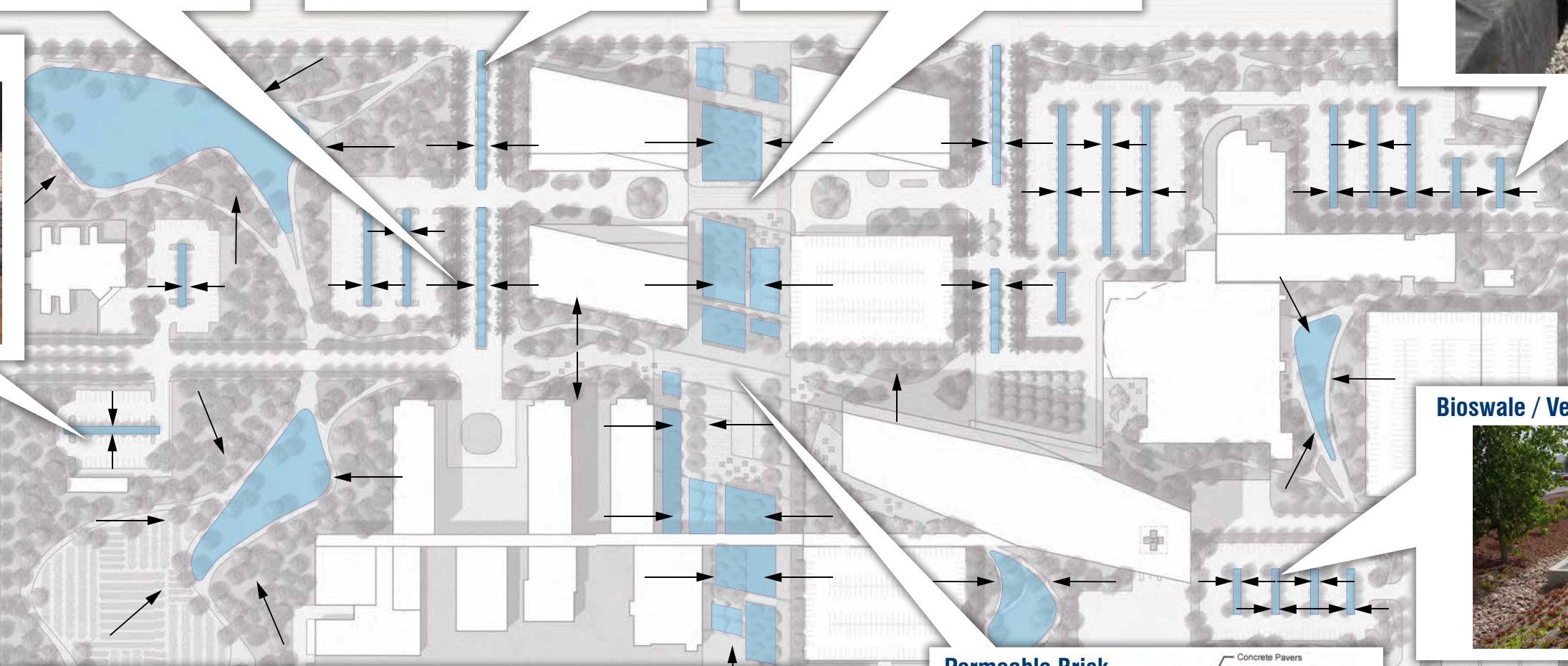
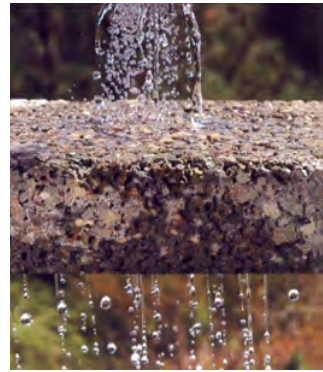
Porous Asphalt / Pervious Concrete



Subsurface Retention



Porous Pavement



Bioswale / Vegetated Swale



LID Strategies

- Bioretention/Rain Gardens
- Strategic Grading
- Resource Conservation
- Flatter Wider Swales
- Flatter Slopes
- Long Flow Paths
- Tree/Shrub Depression
- Turf Depression
- Landscape Island Storage
- Rooftop Detention/Retention
- Roof Leader Disconnection
- Parking Lot/Street Storage
- Smaller Culverts, Pipes & Inlets
- Amended soils
- Alternative materials
- Tree Box Filters
- Alternative Impervious Surfaces
- Reduce Impervious Surface
- Rain Barrels/Cisterns/Water Use
- Catch Basins/Seepage Pits
- Sidewalk Storage
- Vegetative Swales, Buffers & Strips
- Infiltration Swales & Trenches
- Eliminate Curb and Gutter
- Dry Wall
- Maximize Sheet flow
- Maintain Drainage Patterns
- Green Roofs
- Permeable Pavement

Permeable Brick Pavers

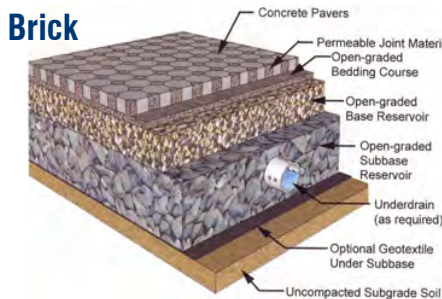


EXHIBIT C

Depiction of how several potential LID techniques might be employed to provide both or alternative volume and flow rate BMPs.

STRUCTURAL ENGINEERING CONCEPTS

The structural portion of the master plan for the hospital is to construct a new multi-story acute care hospital building. The new building will be located adjacent to the Surgery and Emergency Room Replacement Project. It is intended to remain seismically separated from existing buildings. The proposed location will allow the continued use of the Surgery and Emergency Room Replacement Project currently under construction. The new hospital building will replace the existing main hospital and allow the campus to remain in compliance with SB 1953 requirements for an acute care facility past the year 2030. A new detached parking structure will be provided to serve the needs of the hospital.

The proposed location of the replacement hospital is intersected by an existing underground culvert. As part of the construction of the new facility, the existing site condition will need to be resolved by either rerouting the culvert or the structure being designed to accommodate the culvert. It is anticipated that relocation of the culvert may not be a viable option. Therefore it will be required that special consideration be provided by the design professionals concerning the new hospital tower design and layout to accommodate the culvert. It would be expected that initially an attempt would be to provide a layout of the columns and foundations that would have minimal impact on the existing culvert. However if any loading conditions are determined to be located that will impact the existing culvert, then additional foundation beams and supports, such as transfer beams will be required in order to bridge the culvert. There is also the possibility that the culvert will be required to be re-built as part of the new proposed buildings. It is expected that a unique solution will be necessary to fully address this issue. The specifics of the solution are most appropriately addressed during the early planning and preliminary design of the new hospital tower and supporting facilities.

New outpatient buildings will be constructed on the north end of the site. The buildings are to be low rise structures. A new parking structure is to be constructed to serve these buildings and located to serve more than one building. An area within the campus would be designated for possible future expansion of the outpatient buildings as the hospital needs increase. This will allow for shared use of the infrastructure such as the parking structures between buildings.

The central plant will be replaced to serve the changing needs of the hospital. The new central plant is designated to be constructed adjacent to the existing facility on the south end of the site along 220th street. The intention is that the proximity of the existing central plant to the new facility will allow it to remain in operation until the new facility comes onto line.

The communications building '2 East' located near Vermont Avenue is to remain. The building was determined to be an important part of the campus that is not easily replaced based on its contents. The current non-structural classification will need to be upgraded from a NPC 4 to NPC 5 as part of the construction to meet the requirements set forth in SB 1953.

Based on the information provided by Harbor-UCLA Medical center, the existing main hospital has a seismic classification of SPC 2 after the current seismic retrofit is completed. The buildings will not meet the requirements of SB 1953 to remain as an acute care facility past the year 2030. The plan is for the main tower and PCDC buildings to remain and have their use changed to services that are not required to have an acute care license. The existing north and south wings of the hospital would be demolished. The facades of the buildings adjacent to the demolished buildings will have to be renovated to accommodate this change.

SUSTAINABILITY

It is desired that sustainability strategies be incorporated into the structural design of the campus. The following are recommended structural sustainability strategy goals for the campus.

- Provide cement replacement with fly ash utilizing the following recommended replacement percentages.
- Foundations – 40% to 60%
- Columns, Walls and Slab-on-Grade – 25% to 40%
- Elevated Structures – 25%
- Utilize high recycled content steel rebar and structural steel
- Use regional materials extracted and manufactured within 500 miles
- Design building for Disaster Resilience

MEP ENGINEERING CONCEPTS

MECHANICAL

The mechanical, plumbing and electrical systems portion of the master plan is to provide a new Central Plant to replace the existing plant since the equipment will be at end of its useful life by 2030 and the building will not comply with 2030 (OSHPD) seismic code requirements. A new plant should be constructed as a part of the new (2030) hospital project. Plant capacity is estimated at 5,000 tons cooling and 40,000 lbs/hr steam to serve the anticipated 2030 campus loads.

The new Central Plant that will provide the cooling and heating service to the campus will be designed in modular fashion. This will permit the Central Plant to expand as other buildings come online such as Outpatient Clinics and LA BioMed buildings. The plant will be equipped with high efficiency chillers, cooling towers, variable speed pumps and steam boilers. The hospital should consider a cogeneration plant that will generate heating, cooling and electricity. Since this campus has a high heating requirement, cogeneration plant should be a good fit. A cogeneration feasibility study will be required to determine the capacity and type of fuel. The cogeneration plant will not replace emergency generators.

Reliability must be incorporated into the design. The health of the facility and its occupants is quite dependant on the mechanical, electrical and plumbing, MEP, engineering systems of the building. The design must allow these systems to stay on-line in the event of electrical power failure, mechanical failure or simply maintenance requirements of a portion of the system.

The building heating, ventilating and air conditioning, HVAC, systems should be designed to meet the future healthcare

and energy codes, and best practices for energy efficiency and sustainability. HVAC systems would satisfy code required filtration and air change rates and air flow pressurization needs of each suite and room. Flexibility will be included in future designs. The ductwork distribution systems on each floor should match up to the greatest extent possible to the smoke compartments which will both minimize fire/smoke dampers and the associated maintenance and it will enable future renovation without affecting adjacent suites. Piping distribution systems on each floor can form loops with isolation valves at quateriles to allow for modification without disrupting much of the adjacent operating space in the future.

An advanced smart-building energy management control system, EMCS, should be integrated with existing and new campus direct digital control, DDC, system. A new complete system of DDC control panels, sensors, electric actuators and control points will be required to monitor and control all the mechanical, environmental, electrical and plumbing systems of the new project.

Advanced healthcare HVAC concepts to be considered include displacement and natural ventilation systems and decoupled heating and cooling radiant system with direct outside air systems, DOAS. Heat recovery and indirect evaporative cooling can reduce site energy use. Solar thermal and solar photovoltaic, PV, installations at the building and site level will help achieve high performance energy design goals

PLUMBING

The new Central Plant would include new heat exchangers for domestic hot water, water softening and purification systems, Medical vacuum and medical compressed air systems and be sized to provide an additional 20% capacity for the existing buildings as well as the new clinics and hospital addition to accommodate usage to the year 2030 and beyond.

The hospital would also need consideration for supplemental water and wastewater tanks sufficient for 72 hour emergency operations for acute care as well as additional on-site fuel supply for emergency generator operation.

At the new building, low water use fixtures will be provided and an in-building gray water collection system for use in landscaping irrigation is envisioned. Also being considered and planned for is a central black water system which will take waste water from the hospital building and process it into treated water (gray water) that can be used for landscaping and an possible other site non potable water needs like cooling tower make-up water. This system will save large amounts of water that would normally go into the street sewer system.

Storm water for the new roof areas will be drained by gravity through the inside storm leaders, storm house drains and storm house sewer. Rain water harvesting systems will be considered. Plumbing fixtures on all floors will be drained by gravity through soil, waste and vent stacks, house drains and house sewers. Consideration will be given to in-building gray water collection systems for water reuse piped to irrigation needs.

Domestic cold and hot water will be distributed throughout the building by a multiple riser system. Loops will be provided on each floor to provide maximum flexibility for future renovations.

Medical gas systems will include: medical compressed Air System, medical vacuum system and medical gas systems (O₂, N₂O, N₂ and CO₂). Complete fire protection sprinkler systems will be provided for each building in accordance with building codes.

ELECTRICAL

A new Southern California Edison, SCE, service feed will be constructed as part of the new surgery and emergency room replacement project. The new upgraded service feeder will replace the existing service drop located on 220th Street. The new underground 66-12 kV service feeder will supply the existing SCE substation located in the southwest corner of the generator building that distributes power to the main 12 kV, 1200A switchgear lineup located in the generator building. The 12 kV, 1200A switchgear is double ended with a tie breaker that separates the incoming utility normal power and the generator plant emergency power. Emergency power is provided from (6) 2000 kW, 12 kV emergency generators that provide 100% back up power to the campus.

The anticipated 12 kV load for future is approximately 15.3 MVA which includes 8.3 MVA of new load for the new surgery and emergency room replacement project facility as well and the new hospital addition. The electrical load for the medical support and outpatients services will be slightly less than the existing hospital. In lieu of upgrading the existing generator plant and switchgear, it is recommended that a separate SCE service feeder be provided to the new hospital as well as a separate dedicated generator plant since the existing generator and switchgear building size will not easily accommodate expansion for adding two more generators and additional switchgear sections required to serve the new hospital. Upgrading the existing generator plant and switchgear will require temporary facilities and interruption of existing services to allow increasing the size of the building and equipment.

Equipment will be so arranged as to minimize any future service interruptions to hospital functions during routine maintenance activities. Location of redundant equipment and the separation of emergency and normal power systems along with redundant equipment rooms and feeder pathways will enhance reliability.

The fire alarm system shall comply with requirements of National Fire Protection Association, NFPA. The fire alarm system shall incorporate an emergency voice and communications system, as defined by NFPA 72. The fire alarm system shall be an addressable multiplexed microprocessor controlled fire alarm and life safety system, which shall be network based with distributed network nodes and amplification.

INFORMATION TECHNOLOGY

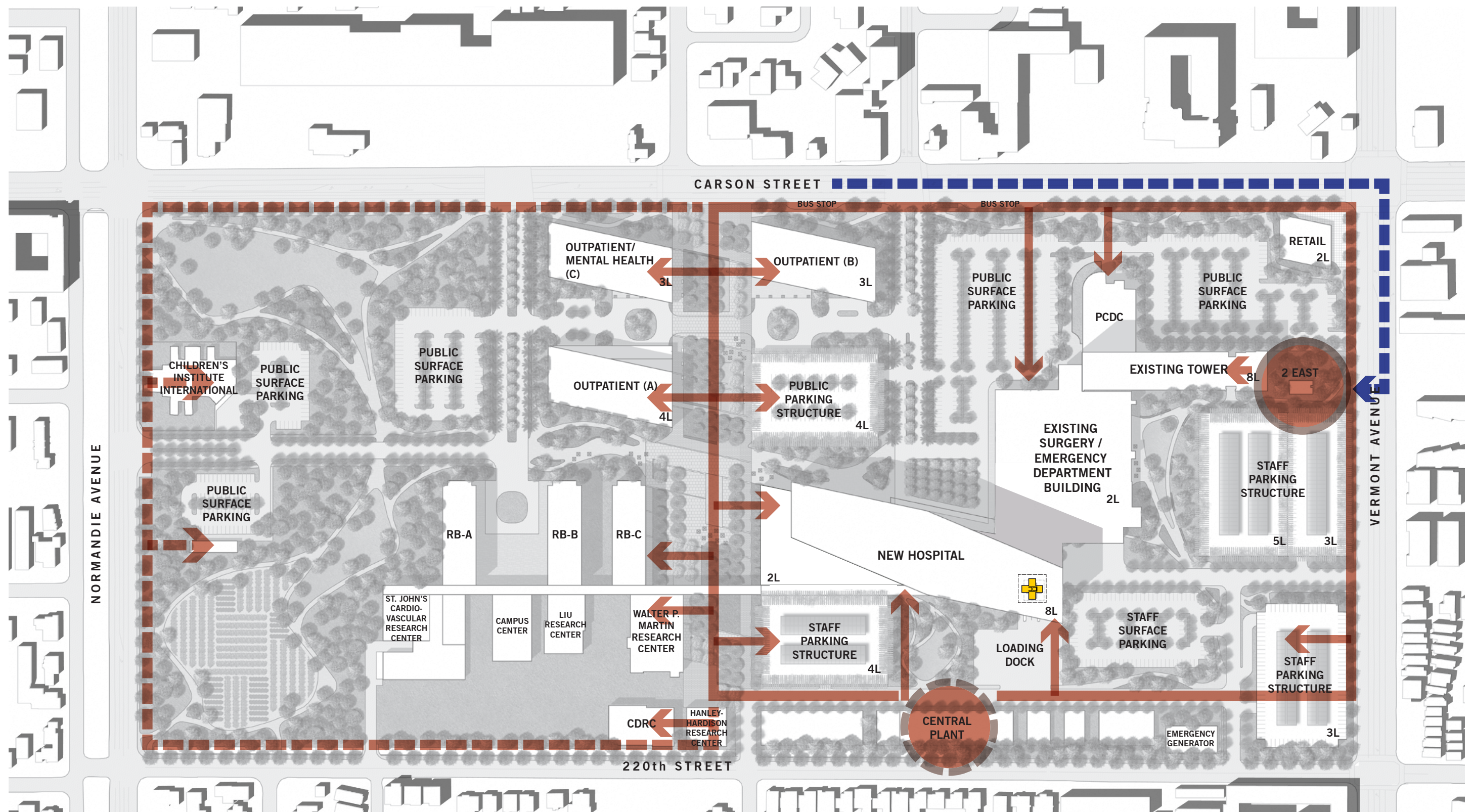


The following assessment of Technology and Low Voltage Systems takes into account the County's upcoming migration to a County-wide Electronic Medical Record and makes a series of recommendations regarding the technologies and the physical requirements of the infrastructure needed to support these systems. The planned construction and upgrade of the campus' infrastructure and facilities is the ideal time to make a significant step towards the next generation of technologies that can offer significant improvements in efficiency, patient safety and satisfaction and staff morale. As connections to the surrounding community, County Hospitals and other medical entities will be planned for, ensuring sufficient capacity and interoperability between systems.

The impact of existing facilities and the phased nature of the plan must be taken into account. Even though parts of the campus will be demolished and/or re-purposed and replaced with new buildings, the campus technology systems must be able to support the remaining facilities until new spaces are available. Phasing of construction shall ensure the technology infrastructure and support spaces are constructed at the appropriate point of each stage of work, taking advantage of modular design principles to minimize investment in the full build-out of these spaces until they are needed. Care must also be taken to manage the impact of legacy systems to avoid a “haves and have nots” situation between buildings on campus

DATA SERVICES

The deployment of the planned centralized County-wide Electronic Medical Record system will result in the creation of one or more regional Data Centers and would reduce (but not totally eliminate) the need for Data Center space on campus. Accordingly, assuming the existing on-site Data Center will be de-commissioned at the same time as the Hospital, a Technology Equipment Room (TER) should be planned to house the local data systems and other voice and low voltage systems for the campus. The proposed location for this TER is the new Central Plant development adjacent to 220th Street since abundant power and cooling will be available to support the equipment in the TER. The TER should be approximately 2,000 sq. ft. in size (assuming the



LEGEND

INFORMATION TECHNOLOGY PLAN

- TELECOM BUILDING
- DATA CENTER
- FUTURE CAMPUS DIST. LOOP
- NEW CAMPUS DISTRIBUTION LOOP
- INCOMING SERVICES CONNECTION



County houses its Electronic Medical Record systems in one of more off-site enterprise Data Centers) and supported by dedicated generator-backed Uninterruptible Power Supplies (UPS), specifically design cooling, and augmented fire protection systems. Associated space for a Network Operations Center (NOC) of approximately 200 sq. ft. plus sufficient storage, burn-in / maintenance and other support spaces should be provided adjacent to the Technology Equipment Room.

TELEPHONE SERVICES

The Hospital currently utilizes Centrex services and an Avaya Telephone Switch to provide telephone services throughout the campus, with ties to the remote clinics. The existing telephone switch is also capable of providing Voice over IP (VoIP) services but the current network infrastructure prevents a complete rollout of this technology at this time. The telephone switch is fairly new and is capable of supporting the campus' voice requirements well into the future.

The telephone switch is located in Building 2E (off Vermont, between Building 1E and the AF Parlow Library), which also houses the Main Point of Entry (MPOE) for the campus. Accordingly, this is a key building from a technology perspective. This building should remain in place in its current function, primarily due to the cost of relocating the equipment and cabling terminations that are housed in this building.

EXTERNAL CONNECTIVITY

The campus is connected to AT&T's Torrance Central Office that provides telephone and data connectivity to the campus. In addition, Time Warner provides the Enterprise Wide Area Network (WAN) connectivity, with AT&T acting as the backup. Both AT&T and Time Warner cabling runs down Carson Street onto Vermont Avenue before entering the Main Point of Entry Building (Building 2E) for the campus. As technology systems, including the proposed County-wide Electronic Medical Record, continue to advance and gain importance at Harbor-UCLA this limited external connectivity represents a single point of failure. Accordingly, we recommend that the campus identify a second entry point onto campus that does not utilize the

same pathways (both on and off campus) that the primary connections use. Both the Harbor and Gardena Central Offices could be utilized for this purpose. Ideally, this second set of connections should terminate in a second, new Main Point of Entry facility co-located with the new Technology Equipment Room (proposed for the new Central Plant) and geographically separate from the MPOE in Building 2E.

ON-CAMPUS CABLING

The campus has an underground cabling infrastructure that services all of the buildings on the campus. This cabling takes two routes, with the original cabling meandering between the buildings on the north side of Medical Foundation Drive (and poorly documented) and a newer run of optical fiber cabling originating the Building 2E and running down Medical Center Drive to support the Harbor-UCLA buildings on each side of the Drive (documentation exists.)

The master plan calls for a central services spine (co-located with the existing waste water easement running between Carson and 220th Streets through the middle of campus. The installation of a new underground campus distribution spine, consisting of a series of 4-inch conduits to support optical fiber and possibly copper cabling, connected to the new Technology Equipment Room and coordinated with the other services utilizing this utility corridor is recommended. In order to provide resilient and, as needed, redundant connections for the campus buildings, the creation of a pair of underground ductbank loops connected to the central spine is recommended. This will allow campus buildings to be connected with dual connections to the campus loop and eliminates technology system outages caused by single points of failure.

PHYSICAL SPACE FOR IT SUPPORT STAFF

Currently, IT Support Staff (including the Chief Information Officer) are accommodated in the Barracks buildings. Space should be provided on-site for IT Support Staff – offices, conference rooms and storage - preferably not in the Hospital buildings themselves, but instead in a Medical Office Building or other office space co-located with other Administration departments to allow potential sharing of resources. Note that this does not include the need for a Data Center / Technology Equipment Room, Network Operations Center and other technical facilities in this space, since these facilities should be included in other new campus buildings.

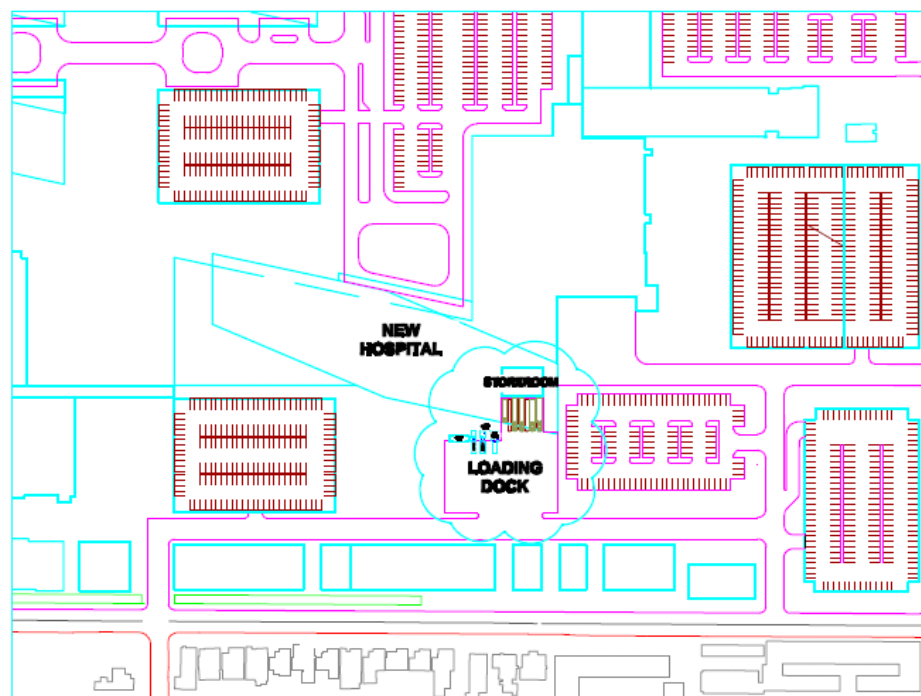
MIGRATION TOWARDS COUNTY STANDARDS FOR IT INFRASTRUCTURE AND SYSTEMS

Currently IT network and telephone systems do not adhere to County standards (which are currently based on Cisco equipment), nor does the structured cabling system. Over time the campus should align its standards with those of the County to benefit from the advantages of being part of a larger entity, such as reduced costs, larger pool of skilled employees, and enhanced management and maintenance capabilities. The move to the Electronic Medical Record system could act as a catalyst to accelerate this migration.

CONNECTION TO LA BIOMED

Currently LA BioMed has its own network and support staff, but there is a significant amount of coordination between the County and LA BioMed staff due to Doctors requiring access to both the County and LA BioMed's systems. Currently this is typically done with two separate computers, but increased network connectivity between Harbor-UCLA and LA BioMed is anticipated and provisions made to connect the LA BioMed facilities into the Harbor-UCLA campus-wide infrastructure.

CAMPUS MATERIALS MANAGEMENT



The campus master plan site will incorporate new Materials and Waste Management facilities. The functional spaces will include:

- A new Materials Management Storeroom
- A new Loading Dock.
- A new Waste Management Center

The new Loading Dock and Waste Management Center will be located at the back of the new Hospital Tower, with the new Storeroom located on the lower level of the new tower (right). This location provides direct adjacency to the majority of the Campuses' medical / surgical beds, who typically use the most supplies and linens, and generate the greatest volumes of medical waste.

MATERIALS MANAGEMENT / STOREROOM

The new Storeroom will replace the Warehouse #1 and #2 functions. All Campus supplies will be delivered to the new dock, and will be received and stored within the new building, and outgoing shipping will occur here. Supplies will be distributed to the new Hospital Tower, Surgery and Emergency Room Replacement Project, Outpatient buildings and all other ancillary departments from this centralized location.

The Storeroom will include bulk supply holding, small unit of measure supply holding, secure stores, appropriate warehouse management software, computers and work stations.

Various "state of the art" supply replenishment systems may be considered to enhance the efficiency of the storeroom, including vertical and horizontal supply carousels, pick-to-light order fulfillment systems (right).

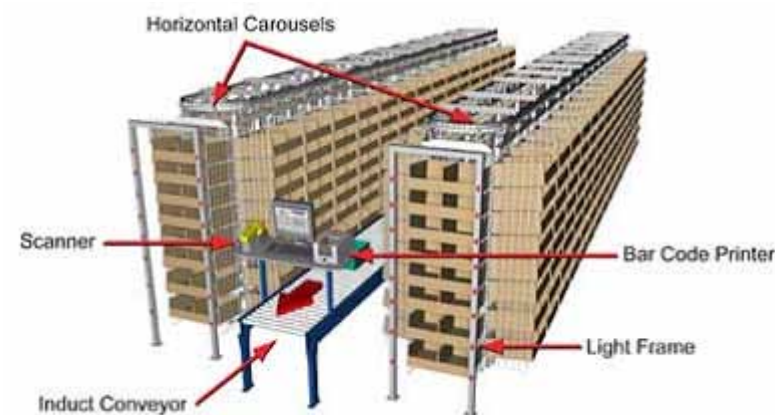
SUPPLY / WASTE / LINEN DISTRIBUTION

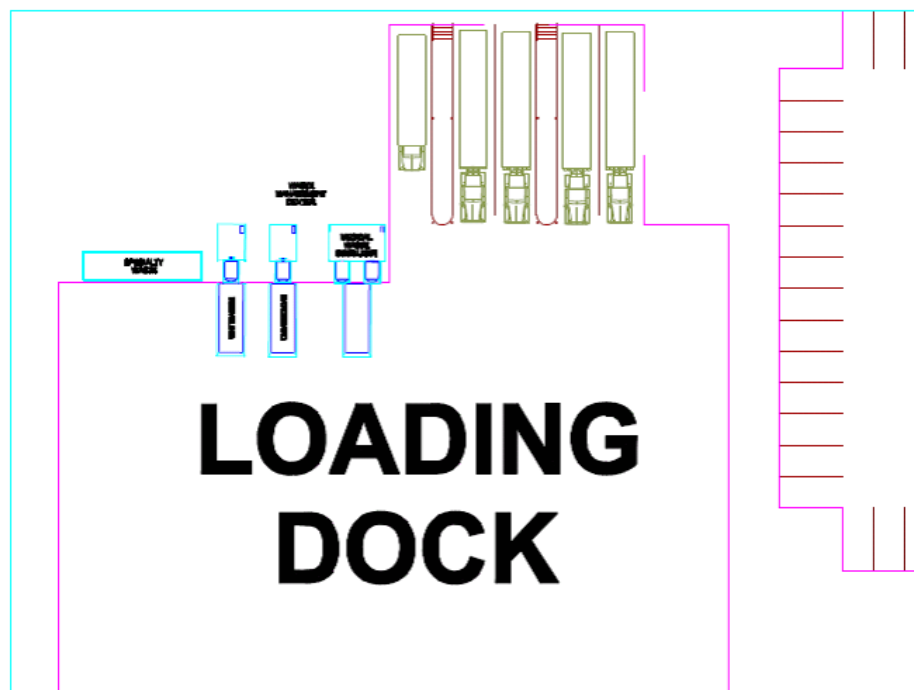
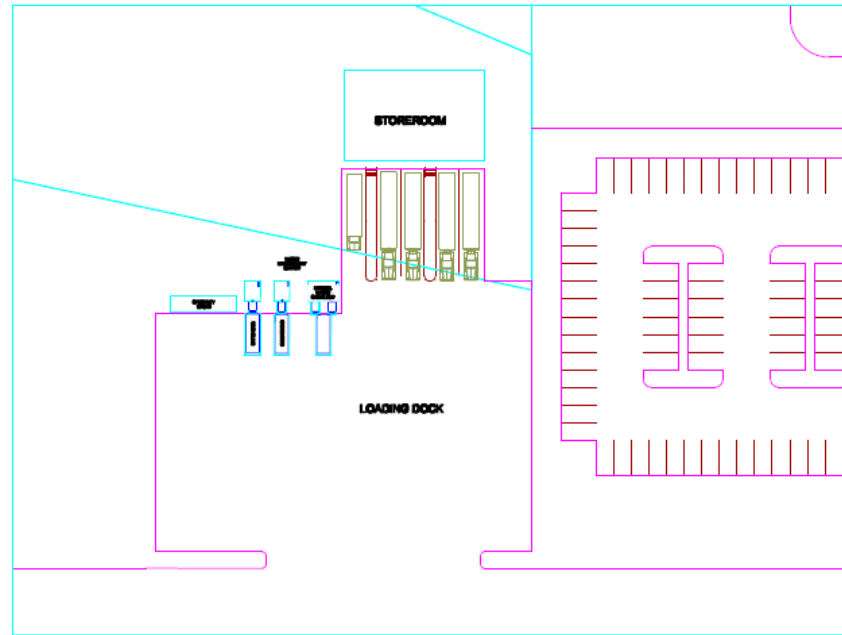
All campus departments and buildings will be supported by the new Storeroom and Loading Dock. Supplies and clean linen will be distributed from the Storeroom, and all waste and soiled linen will be returned to the Loading Dock / Waste Management Center.

These commodities will be moved through appropriately sized and located "service" corridors, and over-land routes to and from Storeroom and various end-users.

In the new Main Hospital Tower, supplies, linen and waste will be moved manually through the lower level service corridors to the appropriate service elevator, where they will be moved vertically to the end user.

Electric Tug vehicles are currently used to transport carts from the Warehouse and Loading Dock to the main hospital departments, and would remain the recommended method to move supplies, waste and linen to the more remote Hospital and Outpatient Tower users. These battery-powered vehicles transport a "train" of one to three carts per trip (below).





Above: Loading dock configurations for the New Hospital Tower

WASTE MANAGEMENT

To best accommodate the future needs of the campus, a new Waste Management Center will be developed as component of the new Loading Dock. The Waste Management Center concept will provide the space and equipment needed to ensure the safe and efficient collection, segregation, staging, transportation and processing of all waste streams generated within the campus.

Waste will be collected from the new Main Hospital building in carts, and will be moved manually down the nearest service elevator to the lower level, moved to the Waste Management Center and dumped into the appropriate waste container.

Waste from the Outpatient Towers, Surgery and Emergency Room Replacement Project and other remote locations can be collected in standard Tilt-Truck carts from the point of generation, and returned by tug vehicle back to the Waste Management Center for disposal, eliminating the need for the waste hauler to make individual pick-ups at each remote building location.

The Waste Management Center will insure flexibility for adapting to changes in waste collection and processing equipment and operations as they become available. In addition, the provision of adequate space for appropriate waste processing, cardboard recycling and food waste composting equipment will allow for more efficient and sustainable waste management practices.

At a minimum, the new Waste Management Center shall include the following elements:

- Confidential Waste Container Holding
- Hazardous Waste Holding
- Radioactive Waste Holding
- Chemo waste Holding
- Universal / E-Waste Collection Area
- Recycled Waste Collection Area
- Broken / Obsolete Equipment Staging Area
- Soiled Linen Cart Holding
- RMW Sterilization Unit
- Food Waste Composter / Container
- Cardboard Compactor / Container

LOADING DOCK

The Loading Dock will be sized and designed to the meet the needs of the master plan re-development, and provides the opportunity to significantly enhance the efficiency of the Dock function.

To gain this efficiency, an adequate number of clean and soiled truck positions must be provided, along with all required dock lift, leveling and safety equipment. Based on Lerch Bates previous Loading Dock studies, information provided by users, and projections of increased dock activity based on master plan space programming, the Five (5) truck positions planned for the new Dock will provide adequate capacity for the re-developed campuses projected volumes (left).

The new Loading Dock will centralize the Receiving function, and consolidate on-campus truck traffic to a single location. The new Dock will include the following elements:

1. Clean Receiving Dock:

- Dock Control Office
- Three (3) Semi-Truck Positions
- One (1) Straight Truck Position
- Stair / Ramp

2. Soiled Dock:

- One (1) Semi-Truck Position

ECONOMIC IMPACTS

INTRODUCTION

This section describes the economic and fiscal impacts of the Harbor-UCLA Medical Center Campus Master Plan. The findings build on the analysis of existing conditions, and compare these baseline impacts to those projected at build-out of the master plan, planned for 2030. The evaluation is based on the scale and character of programming and operations planned for both Harbor-UCLA and the supporting/complimentary uses on site, including LA-BioMed, medical office tenants, and commercial services. Specifically, the analysis focuses on the increased economic activity from these tenants at build-out of the master plan in the context of the local and regional economy. The physical improvements to the site are also considered to the extent that they contribute to the economic and fiscal profile of the campus.

Ultimately, the economic and fiscal impacts generated by the Harbor-UCLA campus will depend on how the master plan is implemented over time and the manner in which the facilities, programming, and tenants relate to the broader community. Thus, a primary goal of this analysis is to inform campus planners and practitioners (e.g., County and hospital staff) about the potential contribution of the Harbor-UCLA campus to the local and regional economy so that the on-going implementation of the master plan maximizes positive impacts (and minimizes any negative ones).

The fiscal and economic analysis has been conducted with reference to several overlapping and inter-related geographies and impact categories. The region is defined as the County of Los Angeles while the Local Study Area refers to the cities of Torrance, Carson, the Harbor Gateway Community of Los Angeles and the unincorporated community of West Carson

The type of impacts evaluated in these areas is summarized below:

1. Primary Economic Impacts from Harbor-UCLA Medical Center Campus Master Plan are based on the direct, on-site employment and spending of the hospital and other campus tenants and their ripple affect through the regional economy.
2. Secondary Economic Impacts from the Harbor-UCLA Medical Center Campus Master Plan refer to the role of the campus tenants in enhancing local and regional economic competitiveness, primarily through their contribution to the bio-medical sector and to a lesser extent by supporting demand in the local real estate market.
3. Fiscal Impacts from the Harbor-UCLA Medical Center Campus Master Plan refer to its potential effect on the General Fund budgets of neighboring jurisdictions (i.e., the cities of Los Angeles, Carson, and Torrance).

KEY FINDINGS

The key findings from this economic and fiscal analysis are summarized below.


- The build-out of the Harbor-UCLA Medical Center Campus Master Plan will substantially increase the scale and intensity of economic activity on the campus, already the largest employment generator in the Local Study Area. The total number of jobs on-site is estimated to increase by almost 1,500, or 27 percent, with the largest growth generated by Harbor-UCLA (1,174 new jobs) and LA BioMed (205 new jobs), respectively. These estimates include the impact of healthcare reform, which is expected to improve the overall efficiency in the provision of medical services on campus, suggesting that the overall level of programming provided by Harbor-UCLA will actually expand faster than on-site employment. By way of example, total patient discharges are projected to increase by 31 percent by build-out while diagnostic and treatment services by 58 percent.
- At build-out of the master plan, the Harbor-UCLA tenants are projected to spend about \$362 million collectively on goods and services and \$597 million on wages/salaries and benefits. This activity is estimated to generate about 18,060 direct, indirect and induced jobs[†] in the County, a 27 percent increase over the existing employment impact. These estimates assume an 85 percent capture of Harbor-UCLA tenant spending in the County, consistent with existing spending patterns. If 100 percent of the spending by Harbor-UCLA tenants were captured locally, its economic impact in the County would increase to about 20,800 jobs.
- In addition to the impact of campus operations, build-out of the master plan will generate significant one-time construction jobs during implementation. Specifically, the approximately \$1.3 billion in construction activity implemented over the next 20 years will generate almost 500 direct jobs plus an more than 600 indirect and induced jobs on average per year (about 1,100 total

average jobs per year). These estimates are reported separately from the on-going operational impacts since presumably construction of the master plan will be complete at build-out.

- Given that the on-site spending and employment growth projected for the campus will be accompanied by significant upgrading of facilities and infrastructure, the overall effect of the master plan will be to create a large and modern nucleus of activity in the healthcare and biomedical fields. This is significant because neither the Local Study Area nor County as a whole currently possesses a high profile destination or identifiable center of activity for the biomedical sector despite a relatively strong presence of firms, research, and health care services overall. Consequently, the master plan effort has the potential to create a local hub or cluster of biomedical activity in the South Bay region and ultimately improve the local “value capture” of direct spending and other “secondary” economic benefits. Thus, by expanding and improving the Harbor-UCLA facilities and programs, the master plan can have the dual benefit of enhancing its contribution to the local and regional economy.
- Given the potential for hospitals and related activities to generate demand for retail, office, and even residential uses (e.g., from both patients seeking complimentary services as well as healthcare tenants and employees), build-out of the master plan is likely to generate demand for a variety of real estate products in surrounding neighborhoods. However, it is unclear how this new demand will be accommodated given the relatively built-out and residential nature of immediately surrounding neighborhoods. Ultimately, these land use impacts will depend on a variety of factors, including the decisions of individual property owners and local land use planning (e.g., in the communities of Torrance, Carson, West Carson, and Harbor Gateway). Currently, there appears to be some available capacity in nearby business parks as well as receptivity by the owners of adjacent commercial centers to absorb “spill-over” market demand.

- The Harbor-UCLA campus currently appears to have a minimal fiscal impact on the General Fund budgets of the incorporated cities located nearby (these impacts are captured on campus or in the immediately adjacent unincorporated areas). However, the increased activity resulting from build-out of the master plan, in terms of both expanded services, on-site employment, and patient visits, may change this dynamic. Nevertheless, the net budgetary impact of this new activity is likely to be negligible since it will generate both increased General Fund revenues, (e.g., sales and property tax) as well as costs (e.g., from added traffic and safety patrol).

[†] “Direct” impacts refer to the economic effects of total Harbor-UCLA direct employment and spending. “Indirect” impacts represent economic effects on industries that supply Harbor-UCLA. “Induced” impacts represent economic effects on all local industries as a result of the new personal spending by employees in the direct and indirect categories generated by Harbor-UCLA.

A blue-tinted architectural rendering of a park. A winding path leads through a lush landscape with large, mature trees and green grass. Several people are depicted walking along the path and standing in the open areas, suggesting a vibrant, active space. The overall atmosphere is serene and inviting.

Establish a framework and spatial hierarchy system which organizes open space program around adjacent building uses

CAMPUS STANDARDS

DESIGN GUIDELINES

Harbor-UCLA Medical Center Campus includes healthcare, teaching, and research. The campus must meet rapidly changing demands for people, programs, space, equipment, access and services critical to 24-hour operations, while reflecting an overall sense of wellness and healing.

CAMPUS DESIGN PHILOSOPHY

Campus planning, landscape and architectural controls allow development to occur in a unified and ordered manner without sacrificing the opportunity for diversity in the buildings or exterior spaces. Moreover, the architecture, while diverse in form, functions and scale, should be largely organized to form strong, coherent edges to open spaces and streets. Buildings are to be positioned, not as individual elements of the campus, but as a series of edges that reinforce the organization of open space and circulation. The philosophy of the master plan is based on the positioning of potential building sites around defined open spaces, inter-related pedestrian and vehicular corridors, and infrastructure routes.

Exterior open space allows access to buildings, contributes to institutional image, creates places for people, and furthers a campus character of wellness and healing. It is what is seen from the windows of campus buildings. It gives campus users comfort, respite and a place for social interaction. Landscaping is to be designed to enhance orientation, safety, security and comfort while providing the opportunities for relaxation and reflection

The proposed buildings will remain over time, although the medical and education programs will certainly change. However, with flexible internal building design, these new facilities can accommodate Harbor-UCLA Medical Center's mission late into the century.

CHARACTER

The Design of individual buildings is to relate to neighboring structures, open spaces, and landscape, taking into account the following site factors:

- Potential to complement the character of surrounding spaces, streets, and walks;
- View corridors, both to and from buildings;
- Alignment of axis, cornice lines, and features of neighboring buildings and spaces;
- Overall heights, massing, styles, and materials of neighboring buildings;
- Overall scale, styles, and materials of existing buildings;
- Screening of unsightly views of service areas and mechanical equipment located both on grade and on building roofs;
- Campus circulation;
- Solar orientation and other environmental influences.

BUILDING IMAGE

The new campus should have a clear identity with high visibility. The buildings should convey the advancement of medicine, the progressive nature of medical studies at Harbor-UCLA, and sense of welcome to the public. The “state-of-the art” nature of the activities contained within would imply an image that will signify the great medical advances anticipated in the next century. The New Hospital will become the dominant architectural element in the center of the campus. It must convey the inspiration and promise of medicine, along with the openness, accessibility, and human scale inherent on a campus.

EXTERIOR SPACES

The campus includes exterior spaces in a variety of scales, styles and functions. Together they create an organized system of places that provide order and orientation. These spaces fit together so that functions are accommodated and character unified across the entire campus.

SUSTAINABILITY

Harbor-UCLA Medical Center is to be a regenerative place of healing, moving beyond carbon-neutrality to a development that restores ecosystems and biodiversity and improves the conditions for community health.

- The campus is energy and water self-sufficient and operates emission-free
- The campus is built using healthy and equitably sourced materials
- The campus celebrates connection to the healthy, restorative natural world that surrounds it. It is a place where caregivers want to work and members want to heal, a place where caregivers connect the work they do within the walls with the natural cycles they witness around them
- The campus is resilient to climate and system impacts, continuing to be a functional community resource in times of crisis

SUSTAINABILITY IDEALS

The goal of the project’s sustainability methodology is to identify the negative impacts of the facility’s operations on the site, community, and environment, and to mitigate them through the informed design of its systems.

Work toward a campus that:

- Produces all of its own energy on-site from renewable resources, which includes energy produced from its own waste and wastewater
- Uses no municipal water and produces no effluent discharge
- Recovers and converts all of its (non-recyclable and non-compostable) solid waste into energy to be used on site
- Produces energy from the waste removed from on-site wastewater treatment and reuses the purified water
- Achieves carbon neutrality by reducing its emissions and offsetting the remaining unavoidable portion through renewable sourcing strategies and formation of community partnerships

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PLANTING ZONES

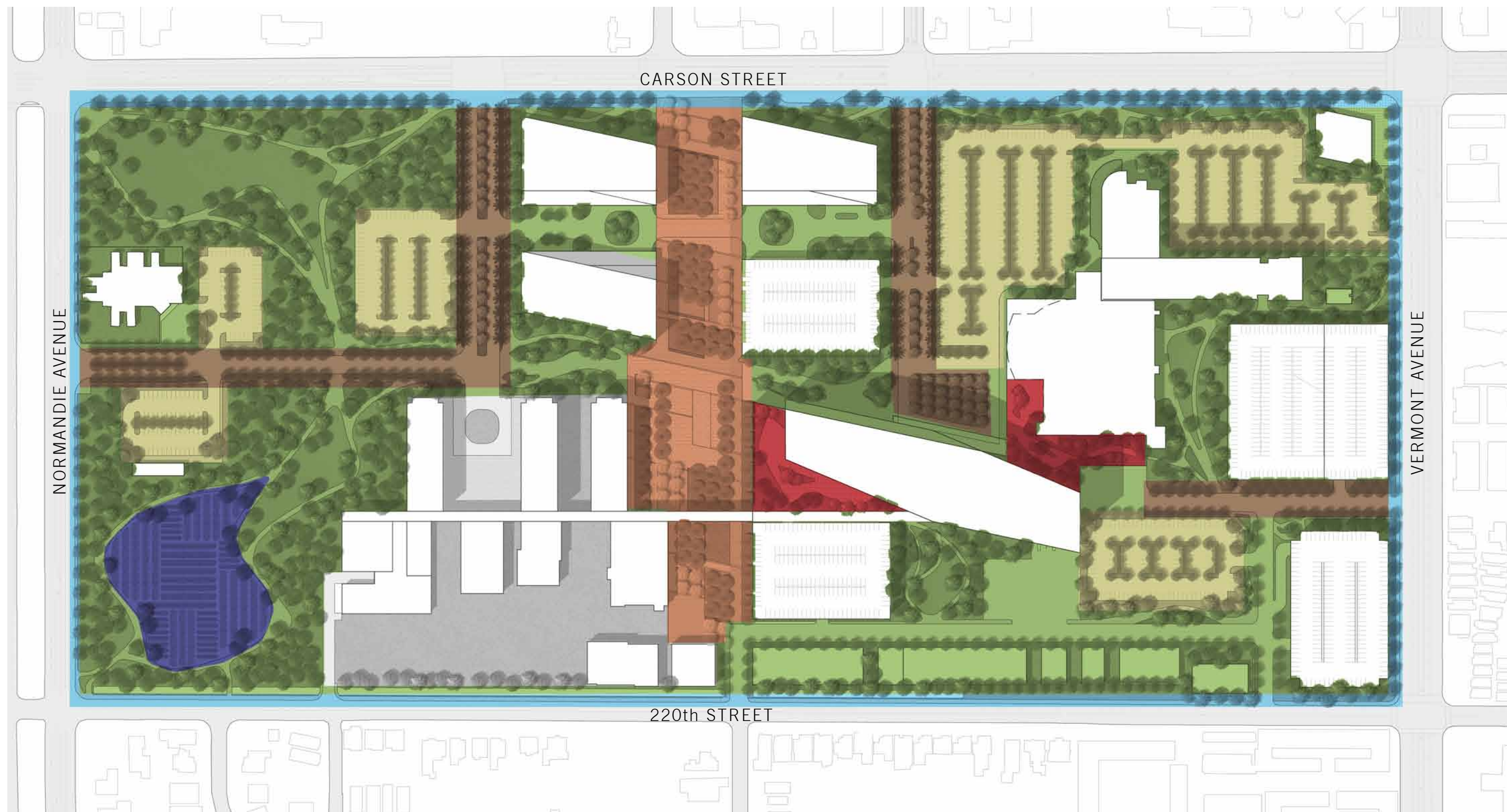
The planting concept positions the campus in an informal park setting that is segmented by entry drives and the Central Garden Spine. Other planting zones will help define diverse open space programs. Using formal and informal planting arrangements with evergreen and deciduous trees, the landscape will help enhance the overall open space experience.

Formal spacing with a singular tree species will help define the campus perimeter within the surrounding community. Campus entries will introduce accent trees and palms to signify gateway entries. The central garden spine will be composed of evergreen trees and flowering accent trees arranged in formal tree bosques. The formality of the entries and central spine will be broken up by informal drifts of deciduous and evergreen trees that meander throughout the campus.

Plant species will be predominately native or culturally native (adapted) that help further create a unique campus setting. Once established, these plants require less water and routine maintenance than the existing landscape helping to reallocate financial resources to improve the overall quality of the campus open space.

LEGEND

	PARK AND TRAIL LANDSCAPE		ENTRY LANDSCAPE
	PERIMETER LANDSCAPE		CENTRAL SPINE LANDSCAPE
	DEMONSTRATION GARDEN		ROOF TOP GARDENS
	PARKING LOT LANDSCAPE		





Linear precast concrete pavers



Integral color concrete paving with sawcut joints



Stabilized decomposed granite

PAVING ZONES

Most of the campus will use cast-in-place concrete paving, including perimeter sidewalks, entries, and major east/west sidewalks. Concrete is cost efficient and relatively maintenance free. Integral color, hand seeded aggregate, and sand blast finishes can help create variety in this paving type and begin to define different areas of the campus, such as the east/west/ plazas that feed off of the Central Garden Spine.

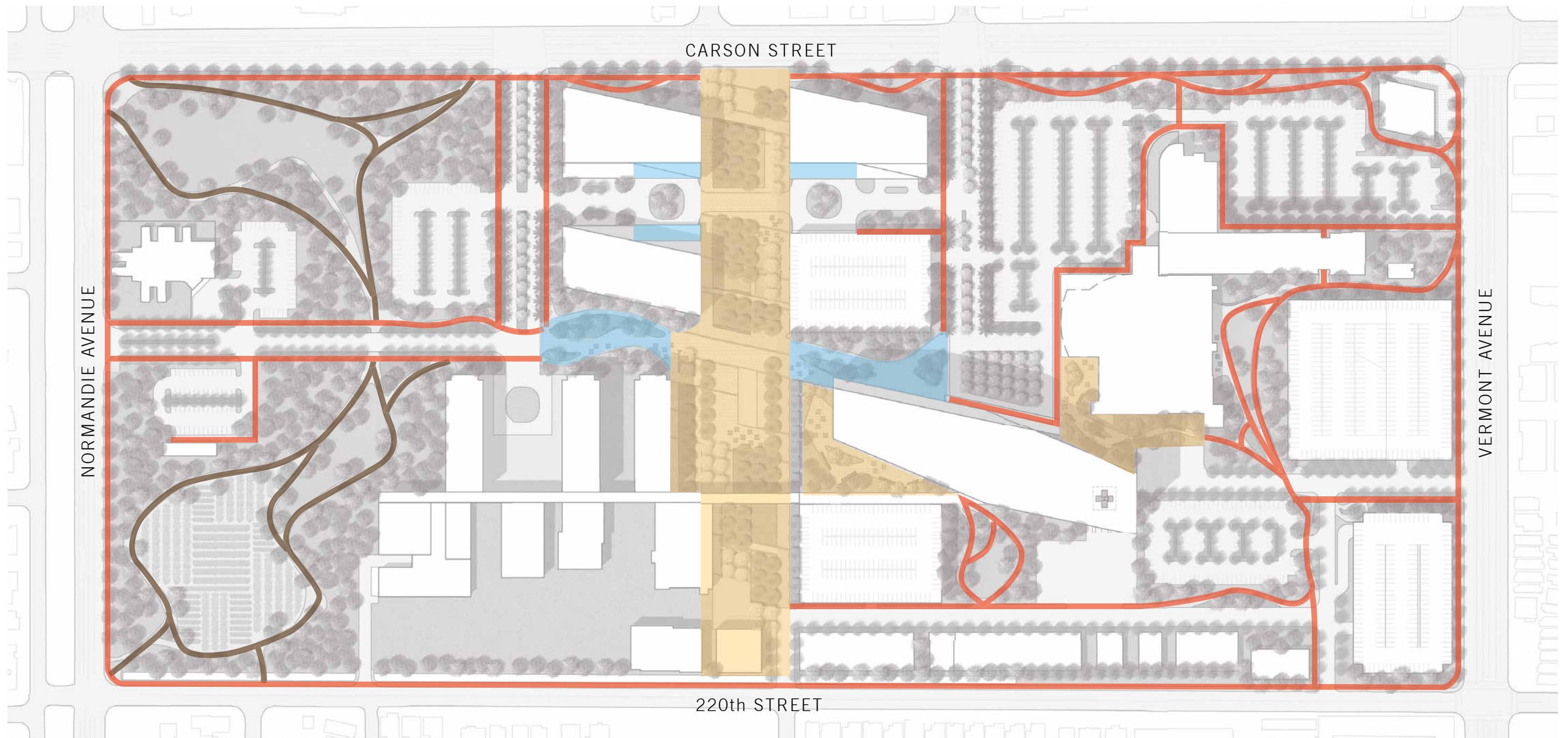
Precast concrete unit pavers will be the predominant paving type with the Central Garden Spine. This paving type will give the spine a fine-grain texture helping to signify its prominence on campus. Several module sizes can be used to help further break up the scale of the spine, however a consistent color tone should be maintained to unify this important area.

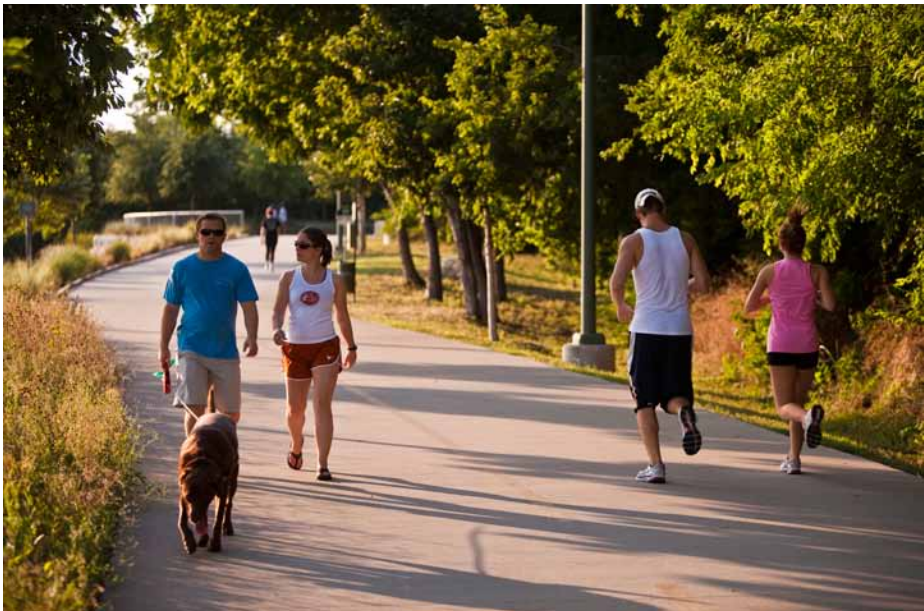
Decomposed granite paths used along the west side of the campus is a very cost effective and maintenance free material that will create a unique experience in a park-like setting. As these trails extend east along Carson Street the paving material should change to cast-in-place concrete which is a more appropriate material along this urban edge.

Depending on the structural drainage strategy utilized by the roof gardens, either cast-in-place concrete or precast concrete unit pavers will be used. If concrete is used, hand seeded aggregate and sawcut joints should maintain the intimate quality of these spaces.

LEGEND

- PRECAST CONCRETE UNIT PAVERS
- ENHANCED INTEGRAL COLOR CONCRETE
- INTEGRAL COLOR CONCRETE
- STABILIZED DECOMPOSED GRANITE





Hospital staff and community exercise trail



Bicycle path on stabilized decomposed granite

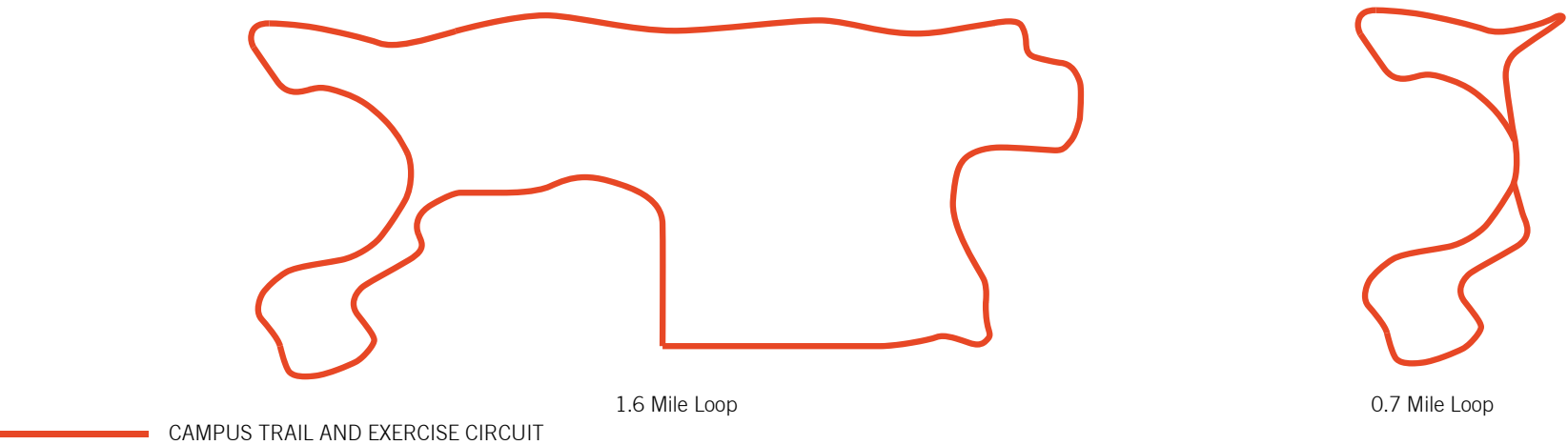


Exercise par course stations located throughout the trail

FITNESS TRAIL

One of the most requested open space amenities by hospital staff during the preliminary master plan analysis was an exercise area that can be used during breaks from their long shifts. With the consolidation of existing research and hospital departments into new buildings, a significant amount of open space can be utilized as an outdoor fitness and wellness trail. The trail wraps the interior perimeter of the site and forms a continuous 1.6 mile loop that is interrupted by vehicular crossings only four times. These crossings will use traffic calming strategies such as paving delineation, speed bumps and speed islands (widened speed bumps with a walking surface no top.) Multiple permutations of the fitness trail loop can be used by staff to add diversity to their workouts. A series of fitness stations that provide areas to stretch and strength train are located throughout the campus to add further variety.

LEGEND







Photovoltaic panels shading parking areas



Tree shaded parking areas

LANDSCAPE SUSTAINABILITY

Reducing natural resource demands is a key goal of this master plan. By utilizing landscape in strategic ways it can perform a variety of tasks beyond aesthetics including lowering potable water demands, reducing heat island effects, and mitigating building cooling demands.

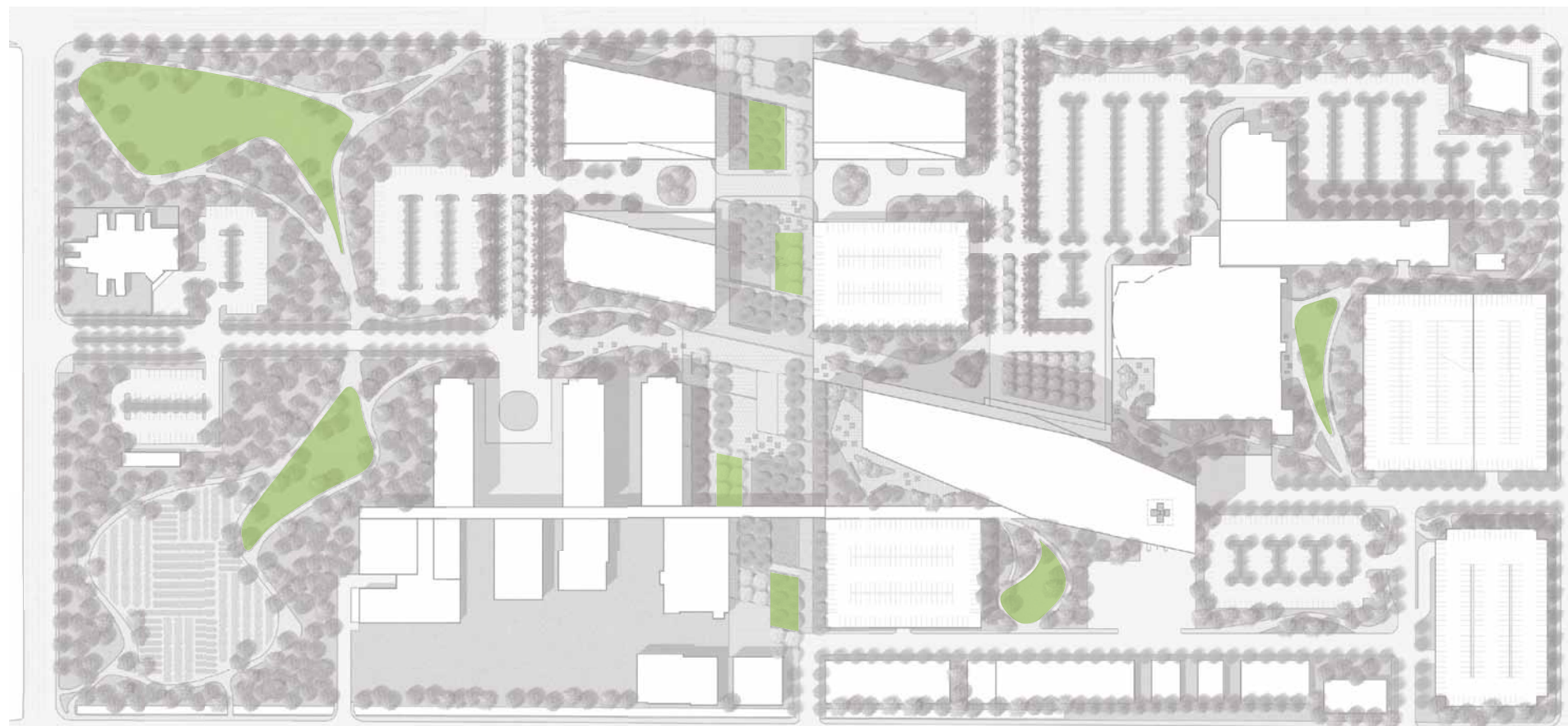
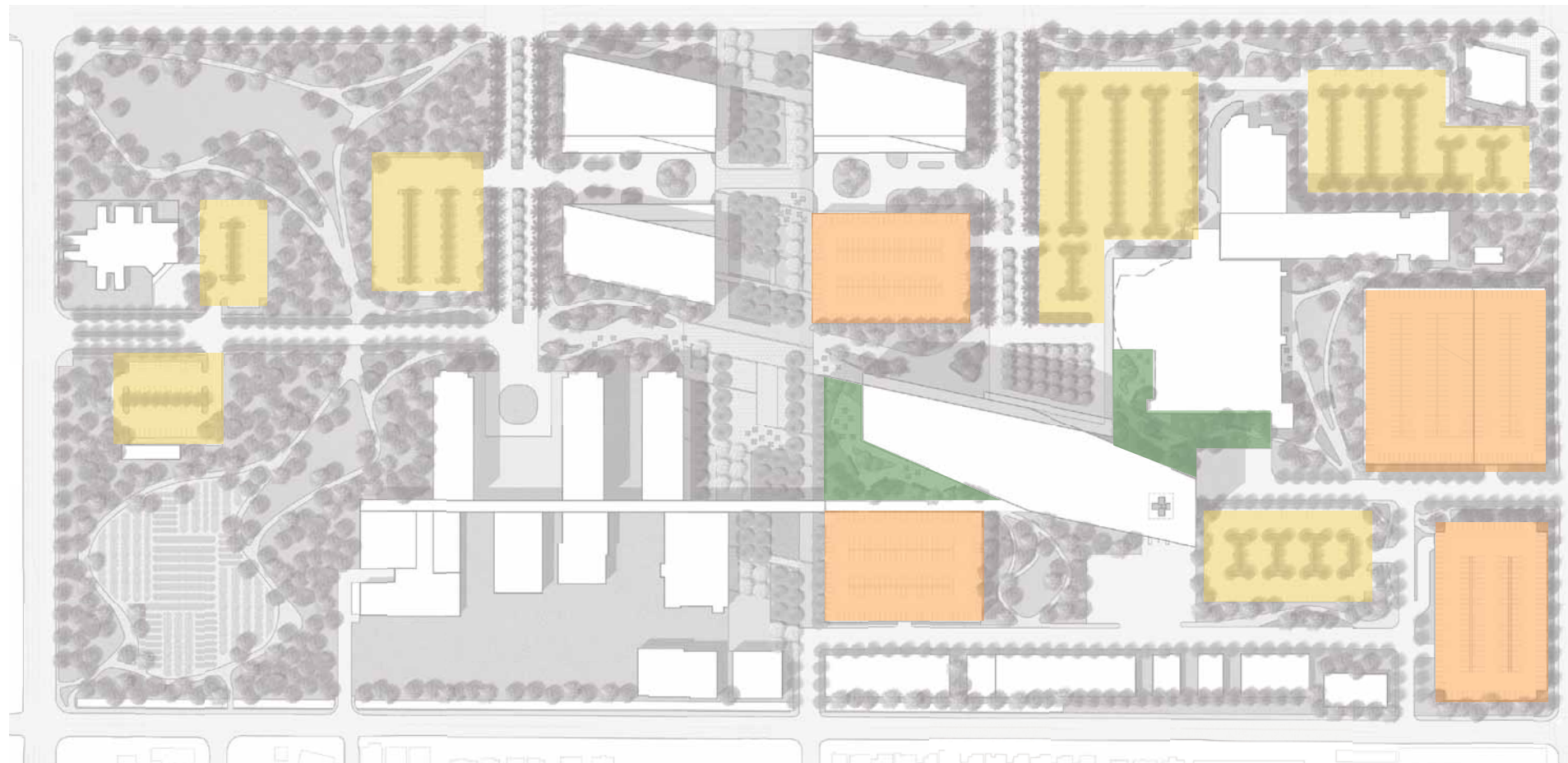
Campus turf areas have been substantially reduced compared to existing conditions. By reassigning over 3 acres of turf area to low water use plants, the campus will save about 7 million gallons a year and an estimated \$15,000 reduction in their annual water bill.

Recent studies have found that urban environments with low density tree coverage are on average 10 degrees warmer throughout the night than similar areas that have more shade. This phenomenon is called the urban heat island effect. By using trees in the parking areas to create a dense canopy of shade, the asphalt's solar absorption rate will be greatly reduced. This means surrounding buildings will cool down earlier in the evening. Furthermore, incorporating green roofs will also help reduce the buildings solar absorption and cooling demands during warmer daytime hours.



LEGEND

- SHADE STRUCTURE / PHOTOVOLTAIC PANELS
- PARKING LOT TREE PLANTING
- ROOF GARDENS
- NEW TURF AREA





Existing campus tree photos

SALVAGED AND RELOCATED TREE LOCATIONS

The Harbor-UCLA Medical Center has several mature tree specimens that were cataloged during early site analysis studies with recommendations to salvage and relocate for future use. Most of the trees selected are suitable for helping to establish the west park area landscape that calls for a rich variety of tree types. This area can be used as a staging ground for these tree until other areas on campus become available for relocations. Other areas on campus suitable for relocating existing trees are the courtyards, and garden areas just east and west of the central spine.

With Evergreen Ash selected as a preferred street tree species, many of the existing Evergreen Ash Trees can be located along the periphery of the park helping to extend the park character out to the public edge. Other accent specimens such as the Jacaranda, Coral Tree, and Silk Tree are suitable for relocation to the courtyard gardens.



LEGEND

● PROPOSED RELOCATED TREE LOCATIONS

- | | | |
|---|---|--|
| 1 - <i>Chorisia speciosa</i> (Floss Silk Tree) | 5 - <i>Jacaranda mimosifolia</i> (Jacaranda) | 9 - <i>Taxodium distichum</i> (Bald Cypress) |
| 2 - <i>Erythrina coralloides</i> (Naked Coral Tree) | 6 - <i>Liquidambar styraciflua</i> (American Sweet Gum) | 10 - <i>Ulmus parvifolia</i> (Chinese Elm) |
| 3 - <i>Ficus benjamina</i> (Weeping Fig) | 7 - <i>Pinus canariensis</i> (Canary Island Pine) | |
| 4 - <i>Fraxinus uhdei</i> (Evergreen Ash) | 8 - <i>Platanus acerifolia</i> (London Plane Tree) | |

Existing tree exhibit illustrating which trees on campus should be protected and preserved prior to new construction work





Vegetated swale in a zero curb parking area



Stormwater directed into bioretention areas



Central curb cut in parking island collects stormwater runoff.

LANDSCAPE DRAINAGE STRATEGY

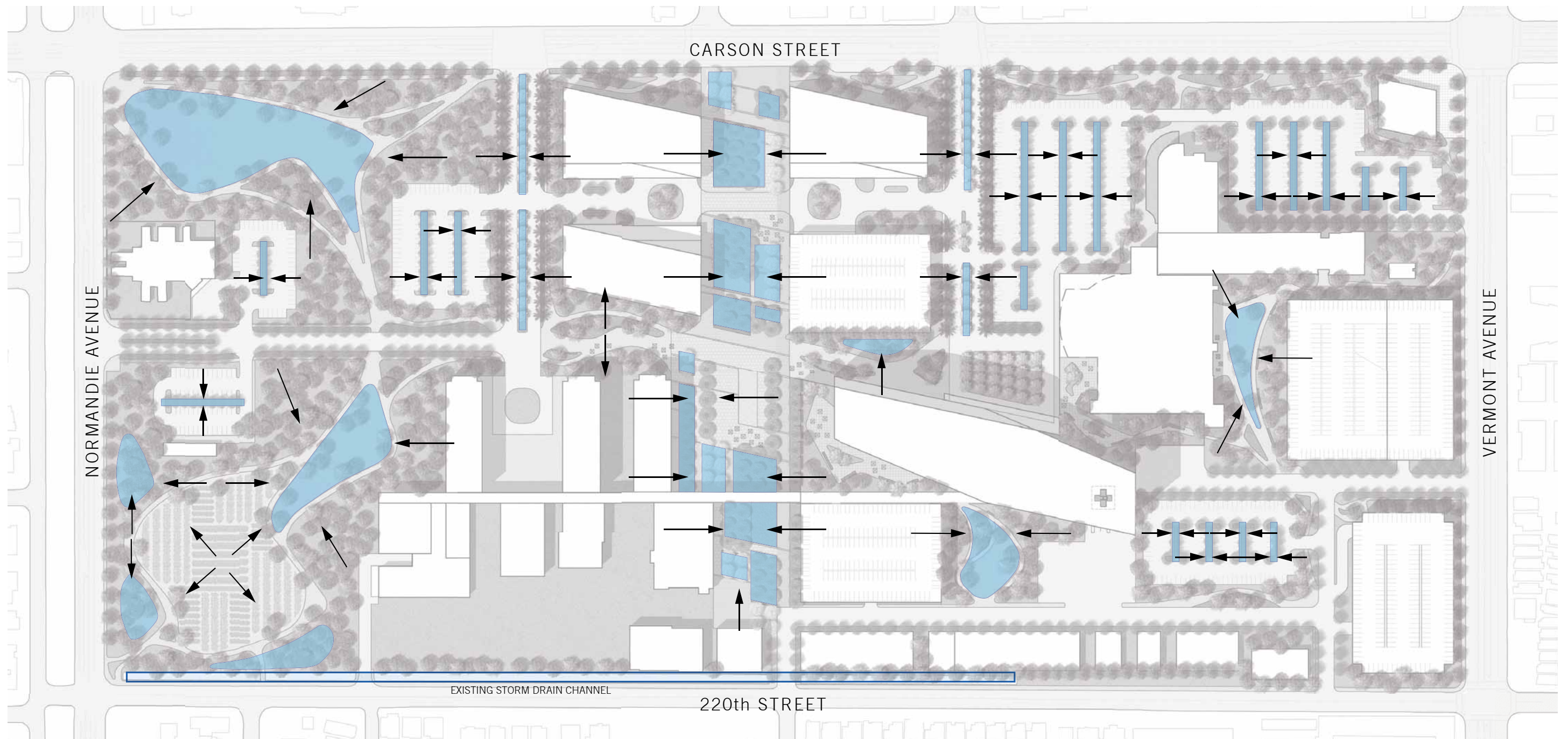
Stormwater capture is a key strategy to improving water quality, reducing infrastructure capacity loads, and minimizing irrigation needs. Capitalizing on conducive soil conditions, the master plan drainage strategy utilizes landscape as the main collector of stormwater drainage. The landscape can hold and clean the water as it recharges underground aquifers, or just slowly release back into the county drainage system.

Parking area will be designed with curb stops at each parking space and zero-curbs around vegetated swales that will capture stormwater. Paving areas around plazas and courtyards will be uniformly pitched into adjacent planting areas. The large turf areas in the west park will be graded to retain stormwater during large events along with other smaller swales and retention areas throughout the park.

The existing open drainage culvert along the 220th Street will remain. A new ornamental fence with vines will help screen this element from public view.

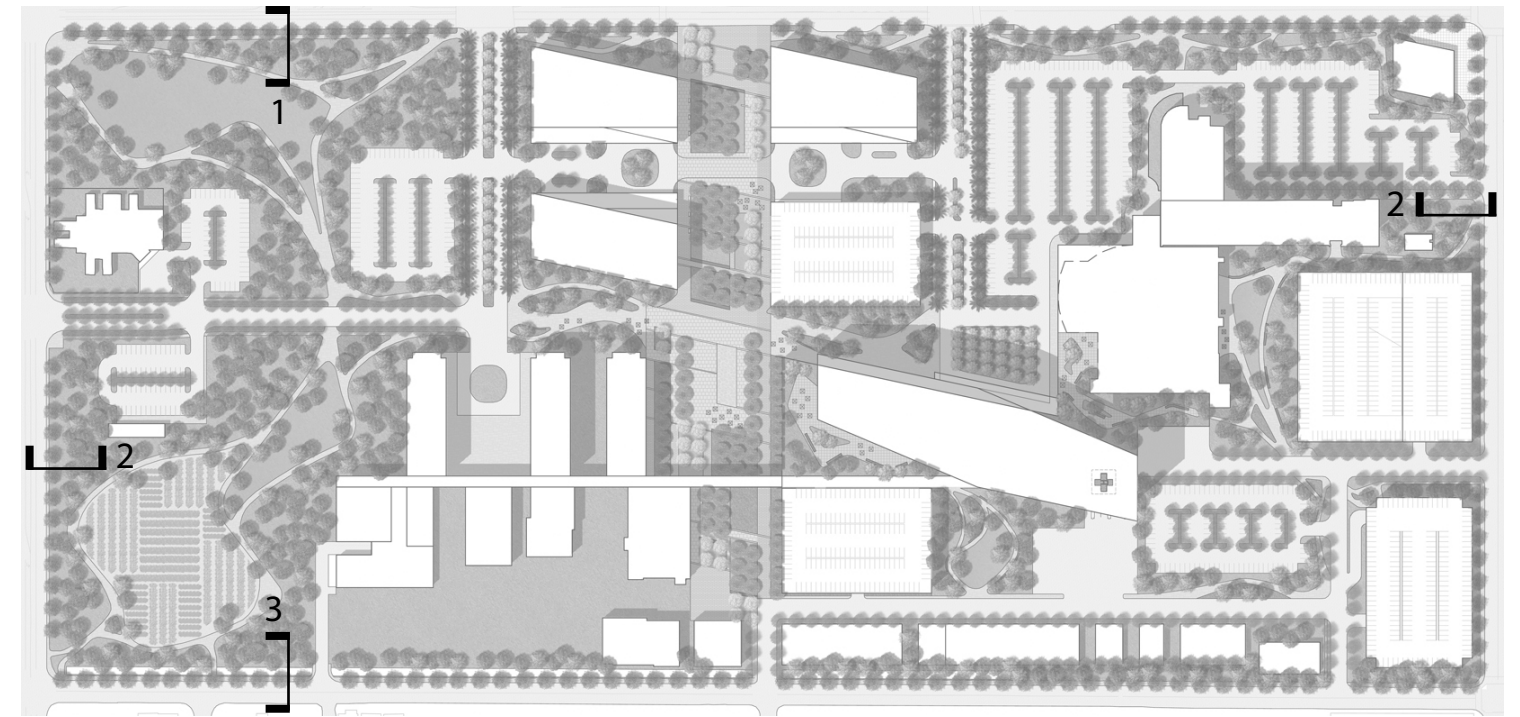
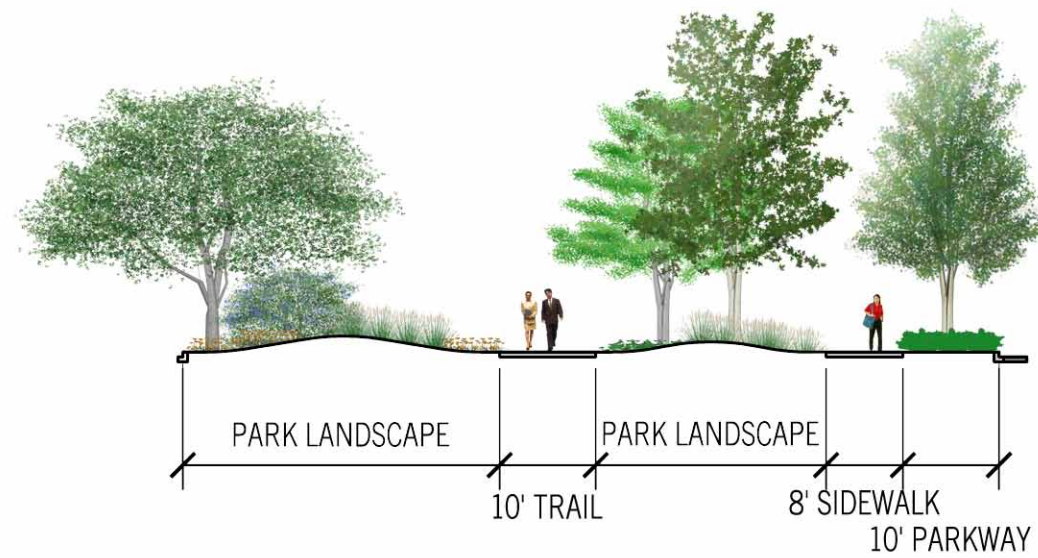
LEGEND

- 
 LANDSCAPE RETENTION AREA
- 
 DRAINAGE DIRECTION

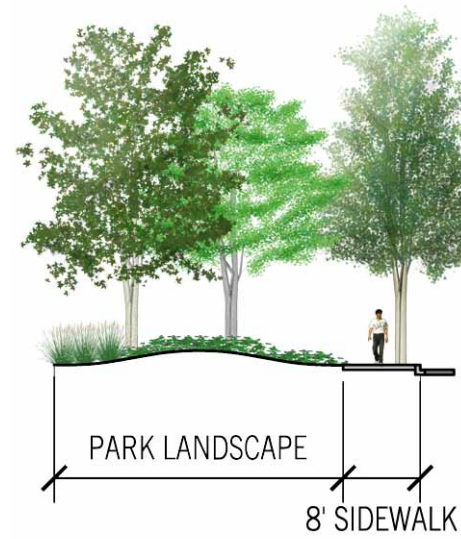


PERIMETER STREETSCAPE

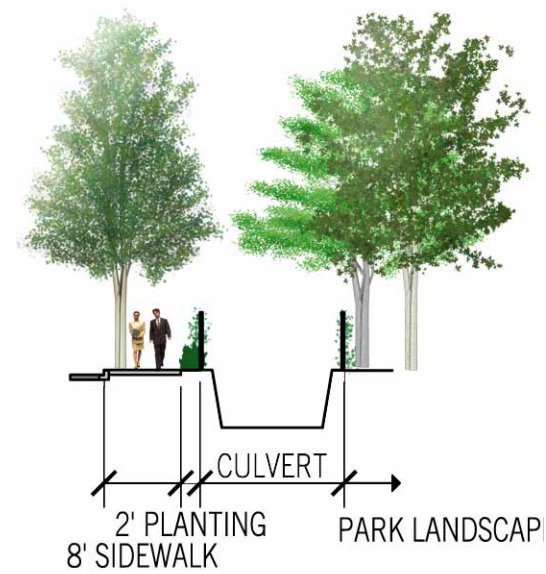
Planting a uniform perimeter streetscape will establish a strong visual statement for the campus within its predominately residential context. A single row of trees along the curb edge will occur in sidewalk planters with the exception of 220th street along the southern edge where the narrow sidewalk mandates tree grates. The single row of trees along Carson Street will be planted in a 10' wide planter at the curb edge which will help buffer pedestrians from the busy traffic street. Removal of the existing chain link fence around the perimeter of the campus will help create a sense of openness and accessibility for nearby residents. A new ornamental fence planted with vines along 220th street will help ensure pedestrian safety adjacent to the existing open drainage channel.



SECTION 1 - CARSON STREET
1"=20'



SECTION 2 - NORMANDIE &
VERMONT STREETS
1"=20'

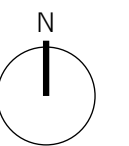
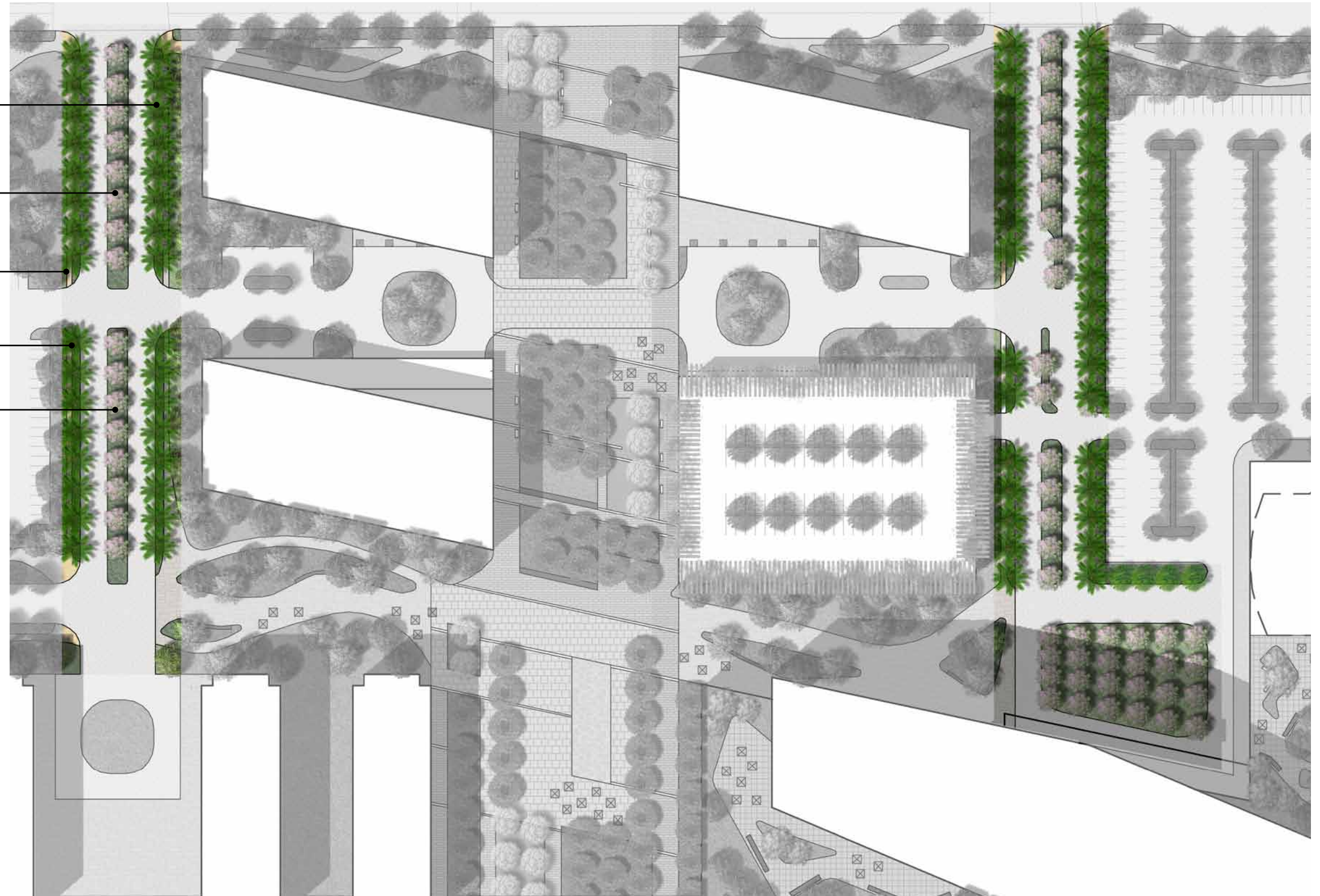


SECTION 3 - 220th STREET
1"=20'

CAMPUS ENTRY DRIVES

The two campus entry drives are important entry gateways for the Harbor-UCLA Medical Campus. These entries will be easily recognizable and visually connect to the main hospital and adjacent parking areas, helping to simplify wayfinding within the campus. The tallest trees on campus, Hybrid Fan Palms, are spaced 30 feet on center and will create an iconic entry experience for patients and guests. To ensure an appropriate spatial scale as the palm trees grow to over 60 feet high, flowering canopy trees are planted in the median and 30 feet on center between each palm tree. As these trees mature, the canopies will grow over the entry drive and create a unique gateway experience. This combination of trees will create a prominent scale with seasonal color which will create a unique identity for the campus.

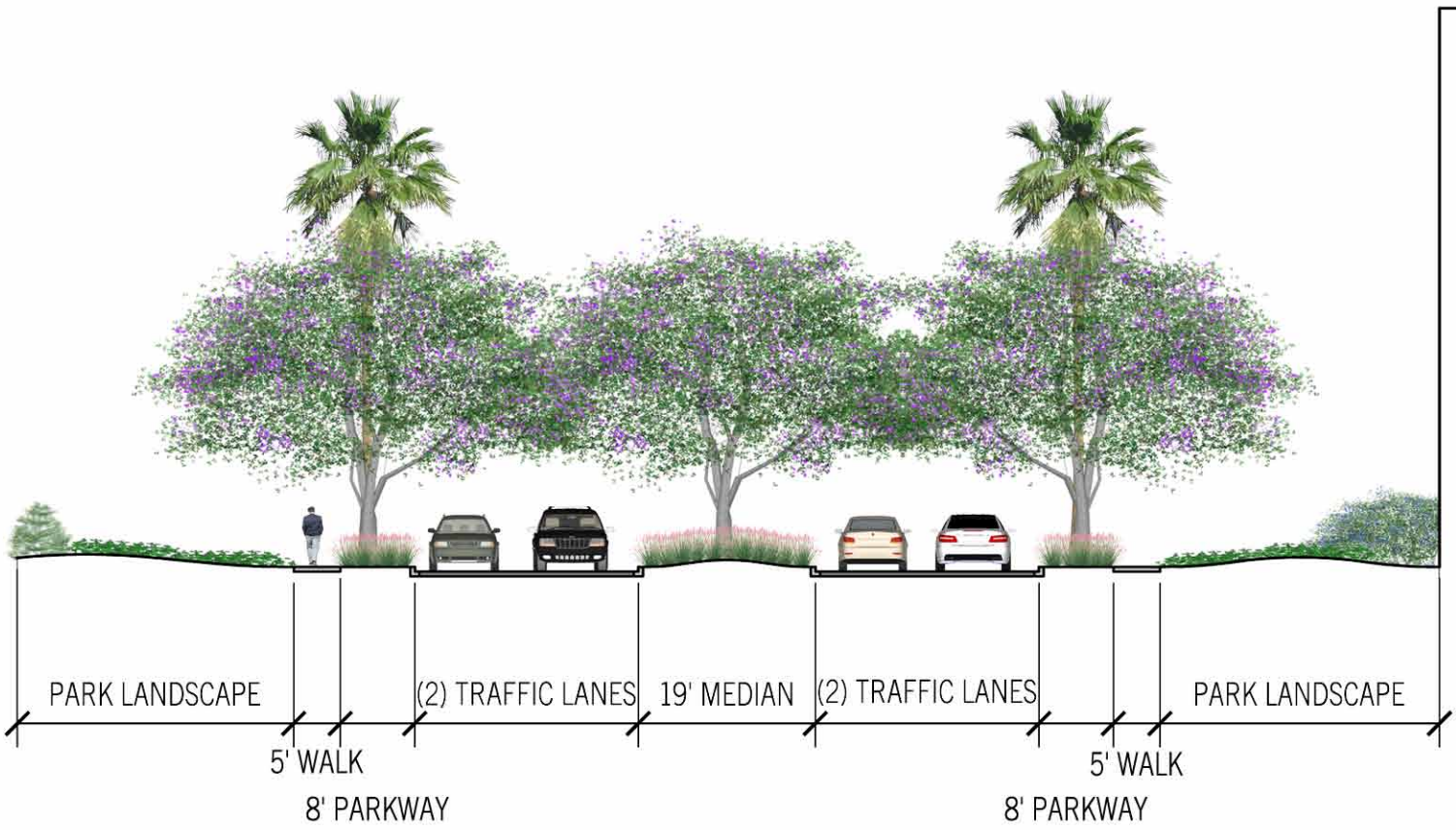
- PALM TREE
- FLOWERING CANOPY TREE
- ENTRY SIDEWALK
- LOW SHRUB PLANTING
- LOW SHRUB / GROUNDCOVER PLANTING



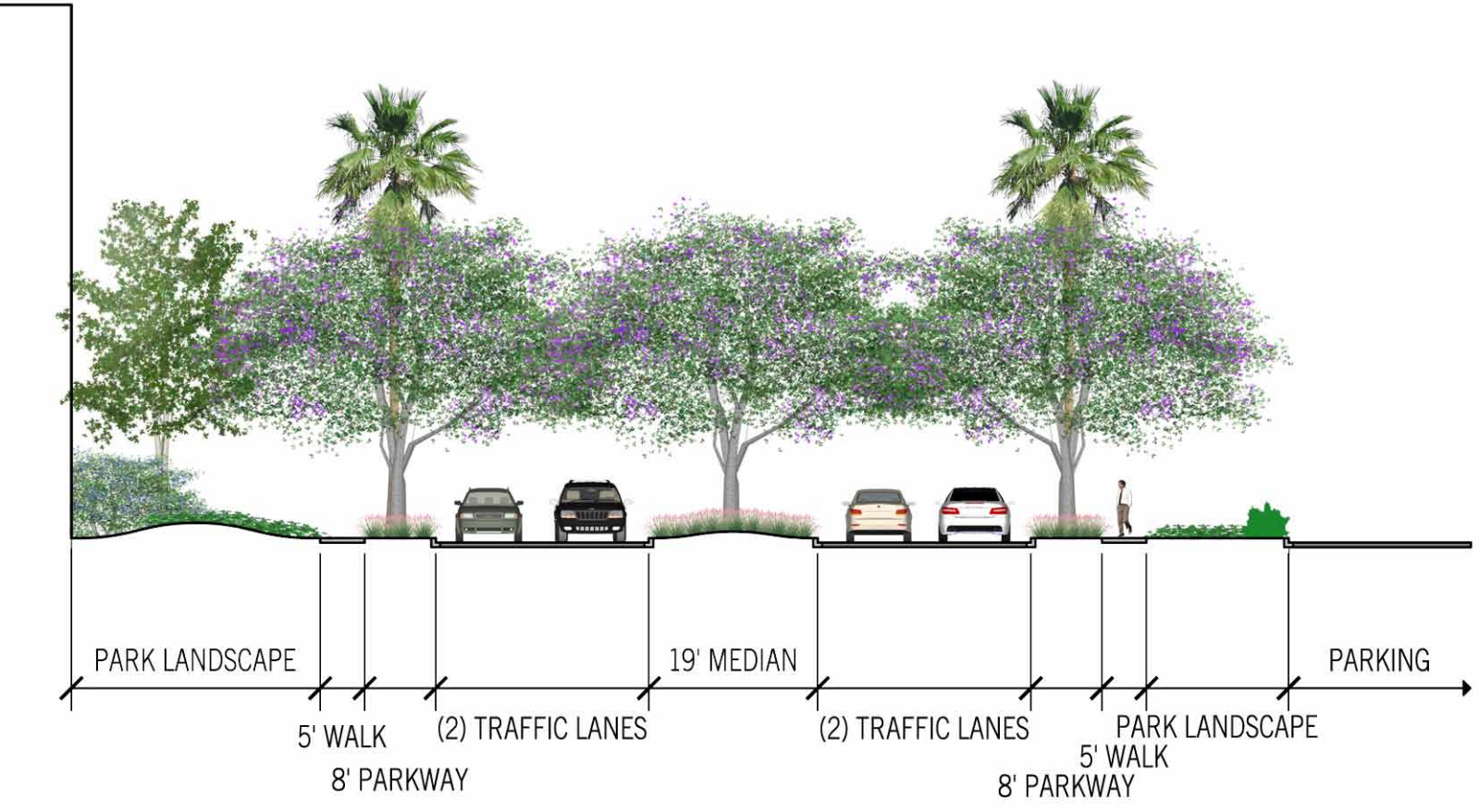
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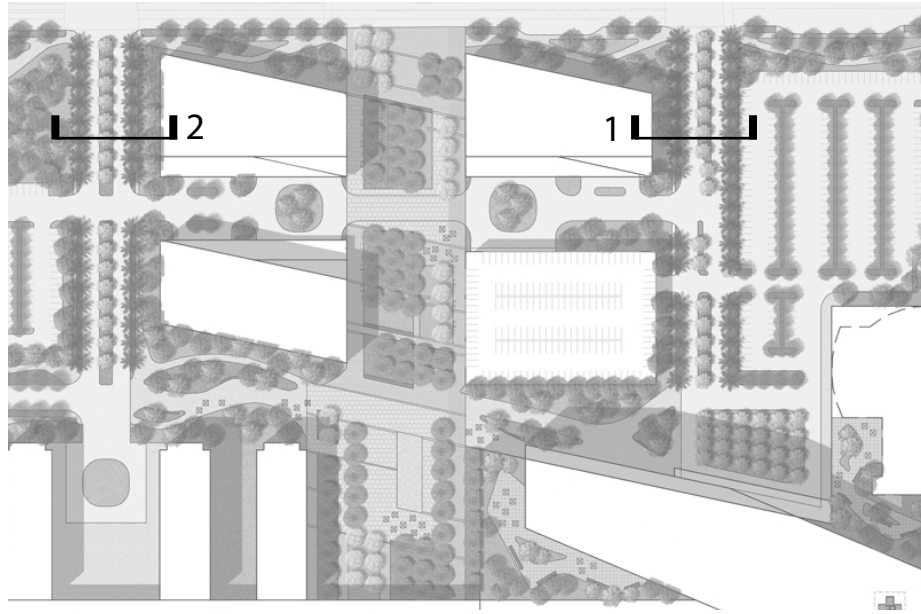
VIEW OF THE WEST ENTRY DRIVE FACING NORTH

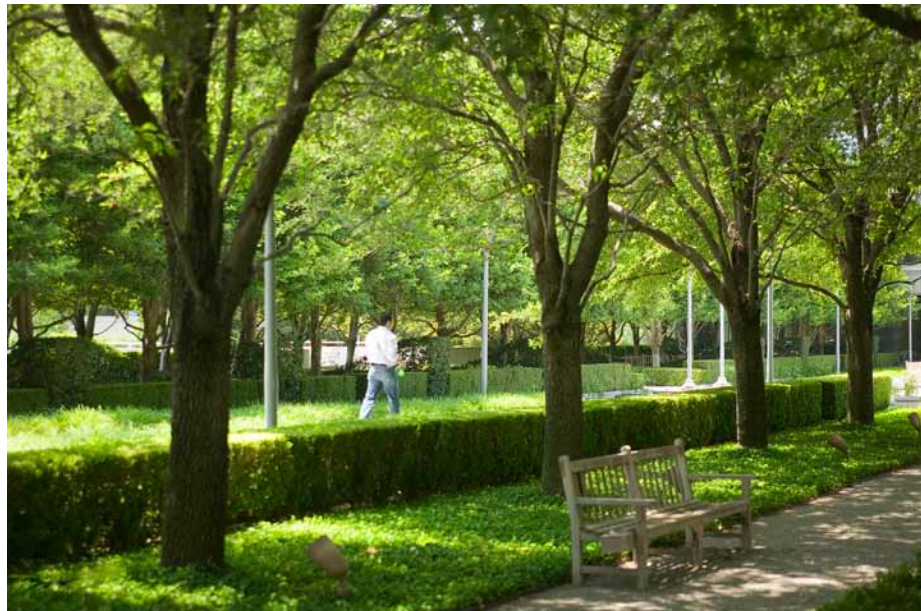


SECTION 1 - EAST ENTRY DRIVE
1"=20'



SECTION 2 - WEST ENTRY DRIVE
1"=20'

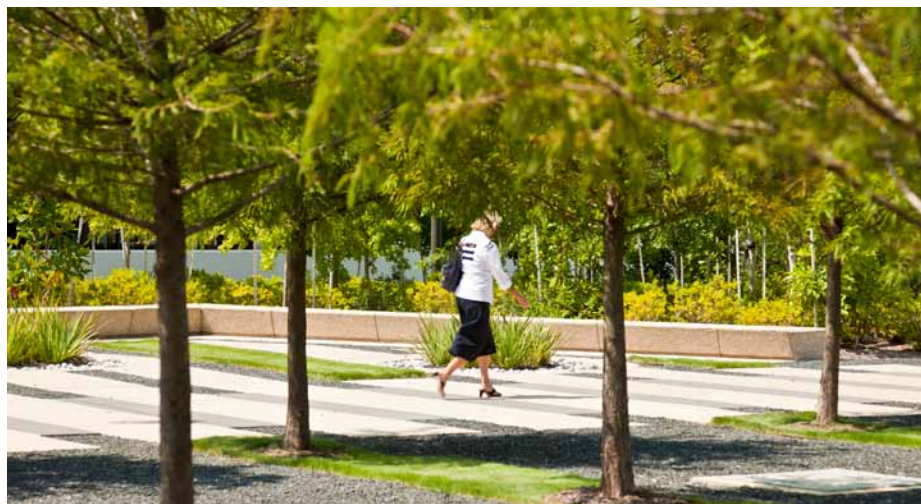




Linear garden planting a shaded seating



Vertical sculptural fountain element



Pedestrian promenade with tree bosques and seat walls

CENTRAL GARDEN SPINE

As the geographic center and symbolic heart of the campus, the Central Garden Spine is the primary outdoor gathering space for the Harbor-UCLA Medical Center. The master plan has strategically framed this area with the three main campus programs: Hospital, Outpatient Buildings, and the LA BioMed campus. The central plaza and north/south pedestrian promenades will seamlessly connect all three uses and provide areas for social interaction and individual relaxation.

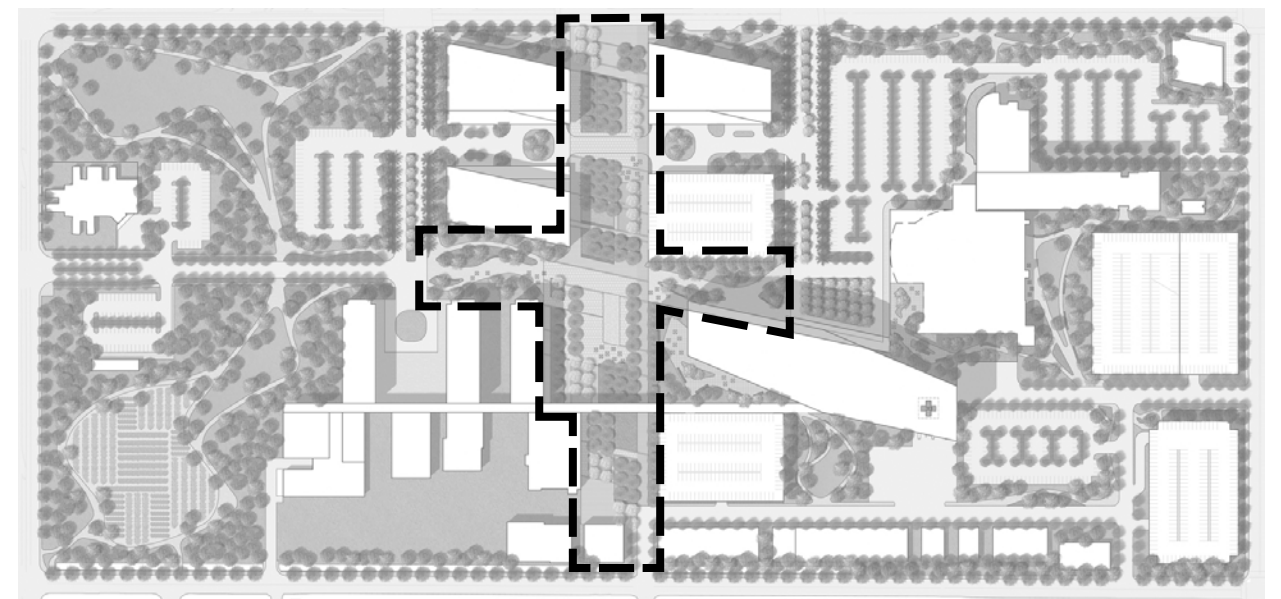
Two different tree types help define this area. The primary tree will be an upright evergreen canopy tree planted in groups which, is accentuated by rows of flowering accent trees. Offsetting linear allee's of accent trees drift through the central spine helping to reinforce the north/south orientation of the space, while angular paving bands that extend the adjacent building geometry help reinforce the east/west pedestrian circulation.

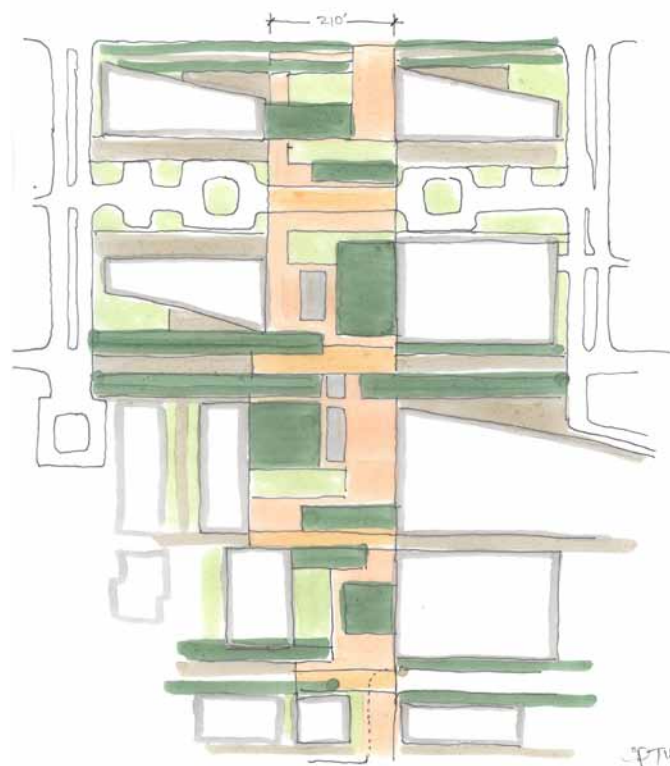
The central spine is composed of four segments with two distinct characteristics. The two north segments adjacent to the outpatient buildings have an intimate scale created by dense tree bosques that create multiple shaded seating areas along the promenades and within the garden. A small plaza located along the west side of the parking structure will serve the ground floor retail that frames the west edge of the spine.

The central location of the third segment defines the main plaza area which features a fountain, cafe tables, shaded seating areas and a large event area. The campus medical library will be relocated to define the west edge of the plaza and help ensure a activity throughout the plaza. Evergreen and flowering accent trees frame the plaza area and offer shaded seating for spectators during events or casually enjoying their lunch.

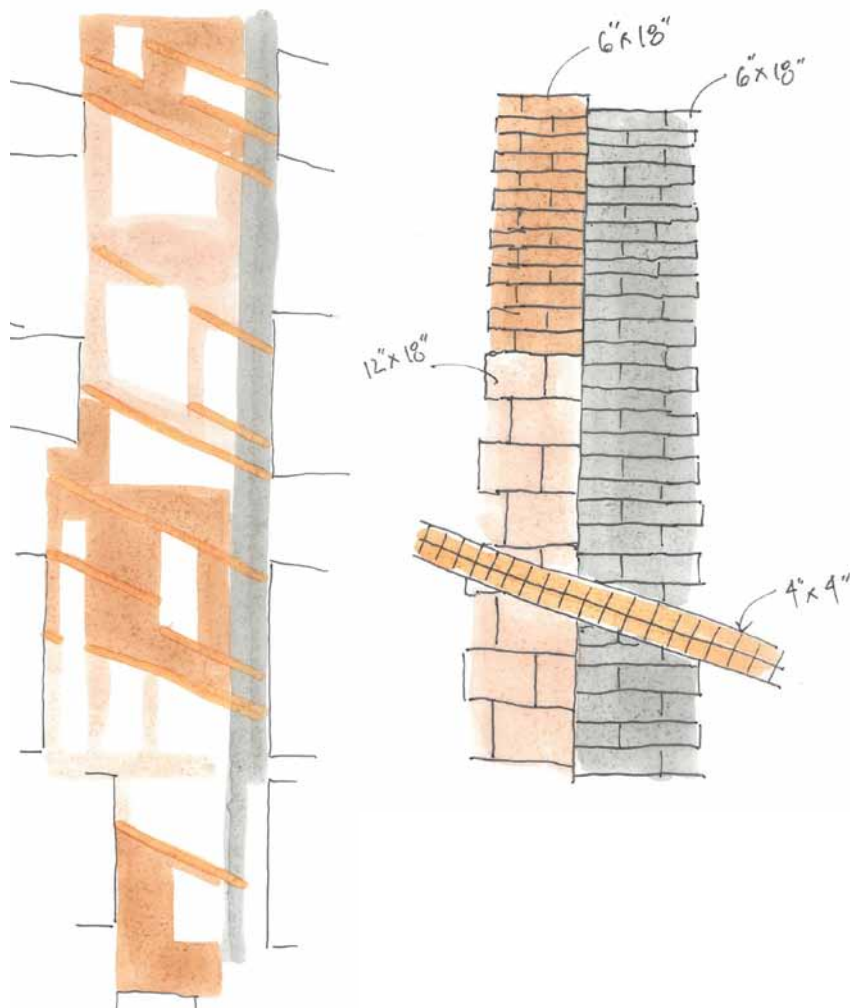
The fourth segment is similar to the first two in that linear arrangements of tree bosques and accent trees create seating areas and help visually provide a connection to the rest of the central spine. With the pedestrian bridge and a heavy planting of trees along the south edge of the plaza, the fourth segment will be mostly used by LA BioMed and hospital staff. A small plaza located at the southern edge will provide a more private event space for hospital and LA BioMed functions.

The central garden spine plaza area is flanked by two informal plazas that provide east/west transitional links to LA BioMed and main hospital. These plazas have a distinctly different design character that will reinforce the north/south axis of the central spine, and continue the natural landscape vocabulary of the west park and the Carson Street frontage throughout the campus; helping to reinforcing a continuous pedestrian circulation system.



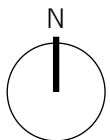


Conceptual framework diagram



Conceptual paving typology diagram

- STREET FRONT PLAZA
- FLOWERING ACCENT TREE
- FORMAL EVERGREEN BOSQUE
- SHADED TURF SEATING AREA
- VEHICULAR PAVING ON RAISED PLATFORM
- CAFE SEATING AREA
- SHADED SEATING AREA
- PROMENADE BENCH
- SCULPTURAL SEAT WALLS
- PRECAST CONCRETE UNIT PAVERS
- PAVING ACCENT BANDS
- PLAZA FOUNTAIN
- CAFE SEATING AREA
- RAISED PEDESTRIAN BRIDGE
- LA BIOMED EVENT PLAZA



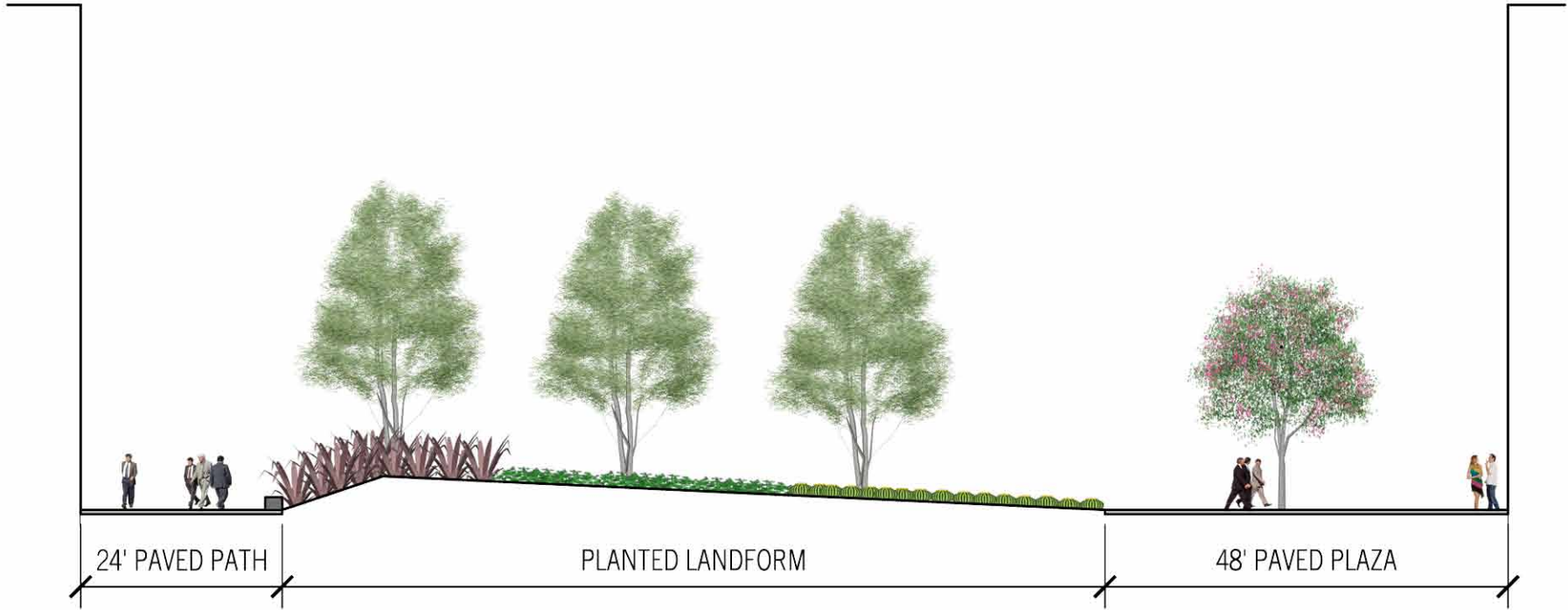
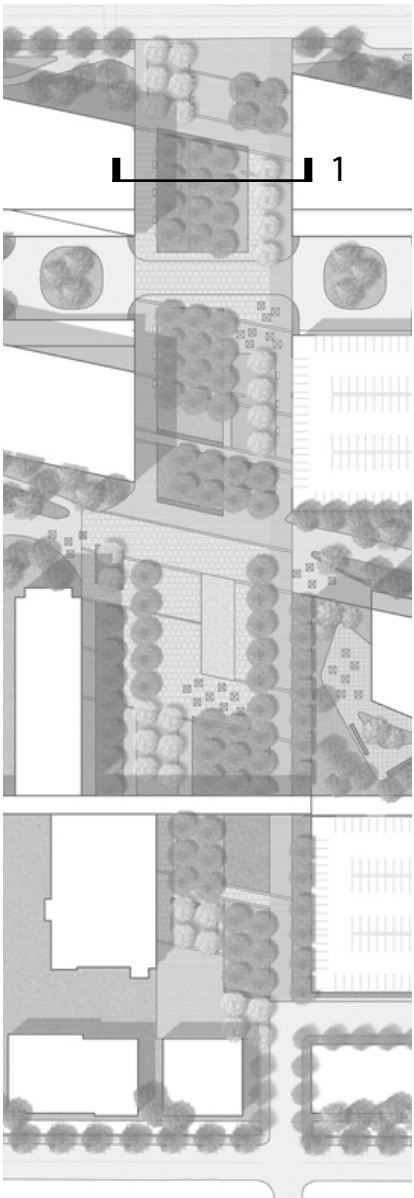
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VIEW OF THE CENTRAL GARDEN SPINE MAIN PLAZA AREA FACING SOUTH



View of the shaded tree bosque along the central garden spine facing south



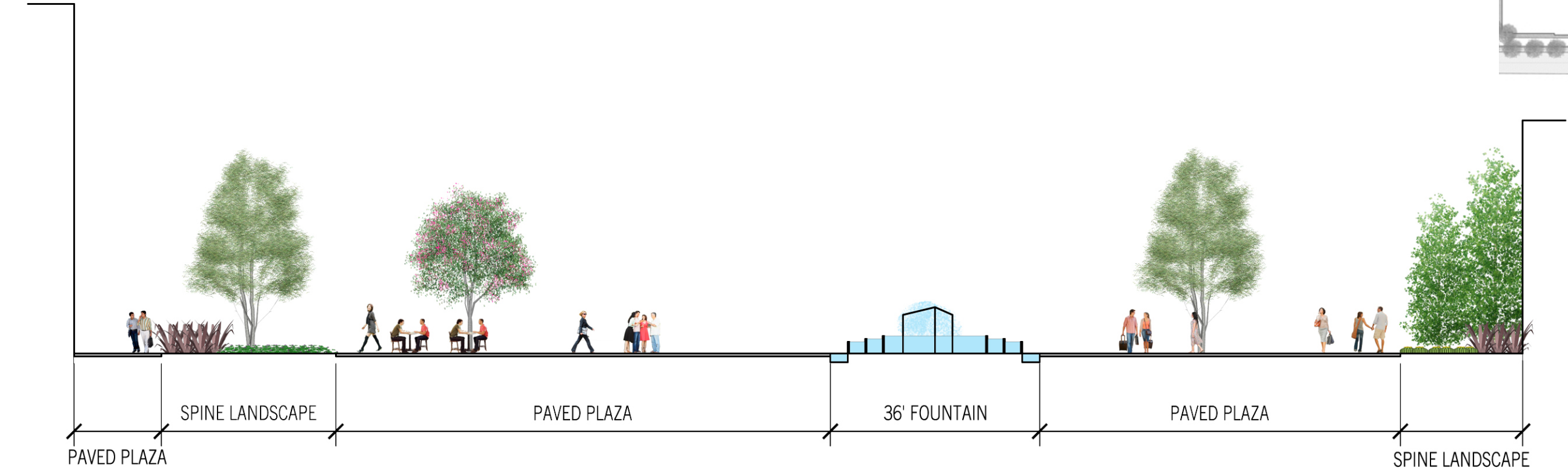
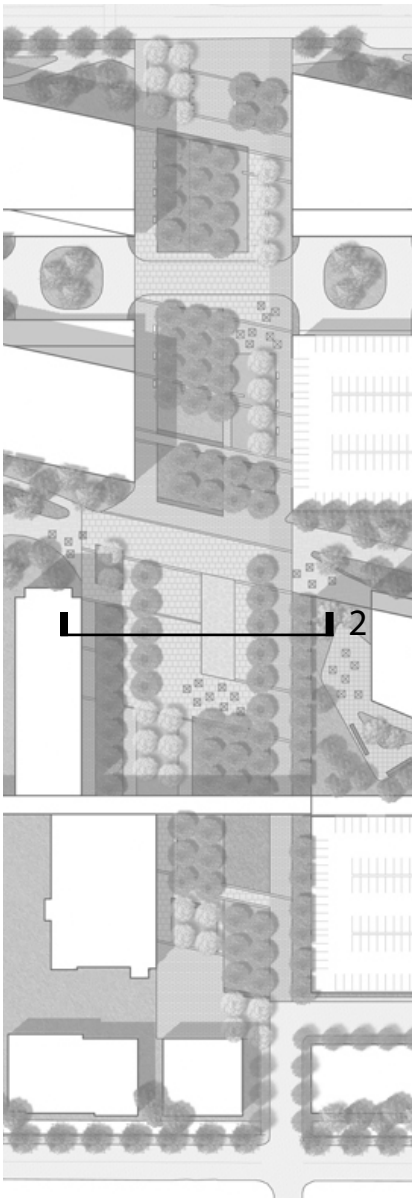
SECTION 1 - PLAZA GARDENS
1"=20'



VIEW OF THE CARSON STREET PLAZA AREA ALONG THE CENTRAL SPINE



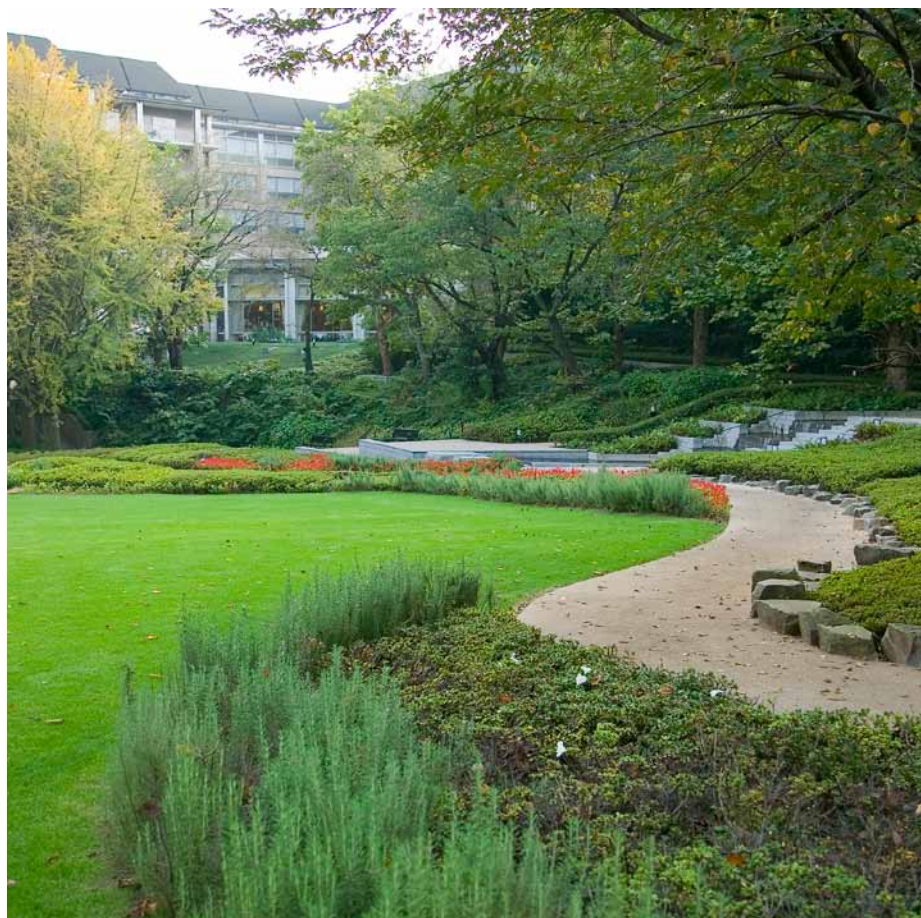
View of the west informal plaza area facing the west entry drive



SECTION 2 - MAIN PLAZA
1"=20'



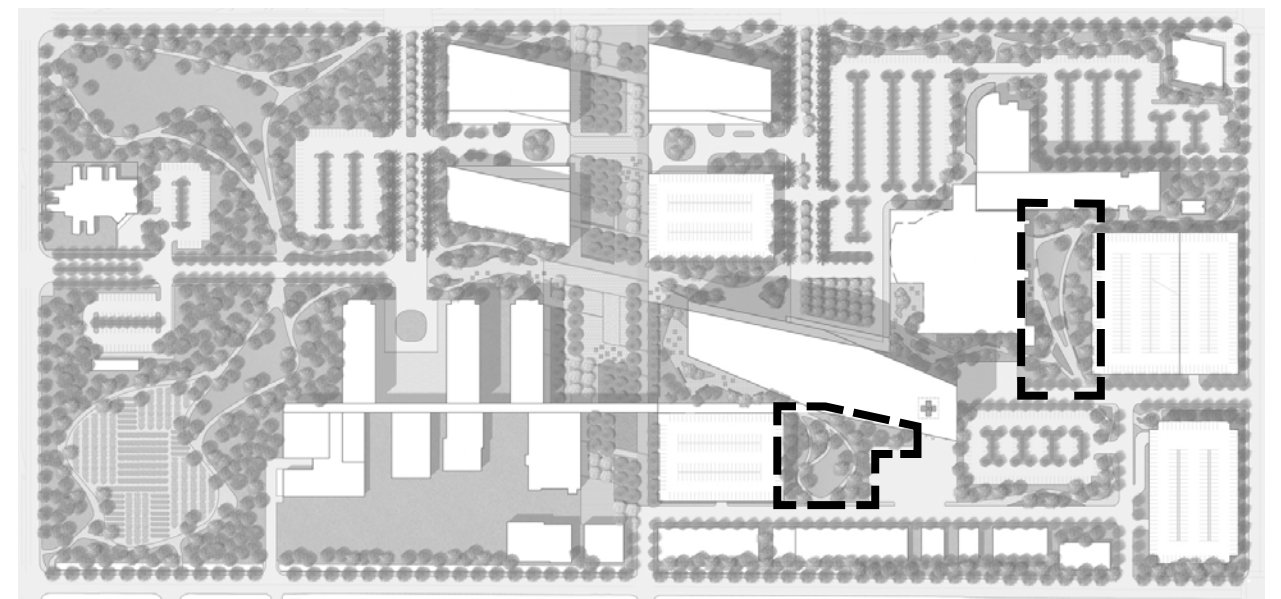
Shaded seating areas

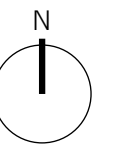
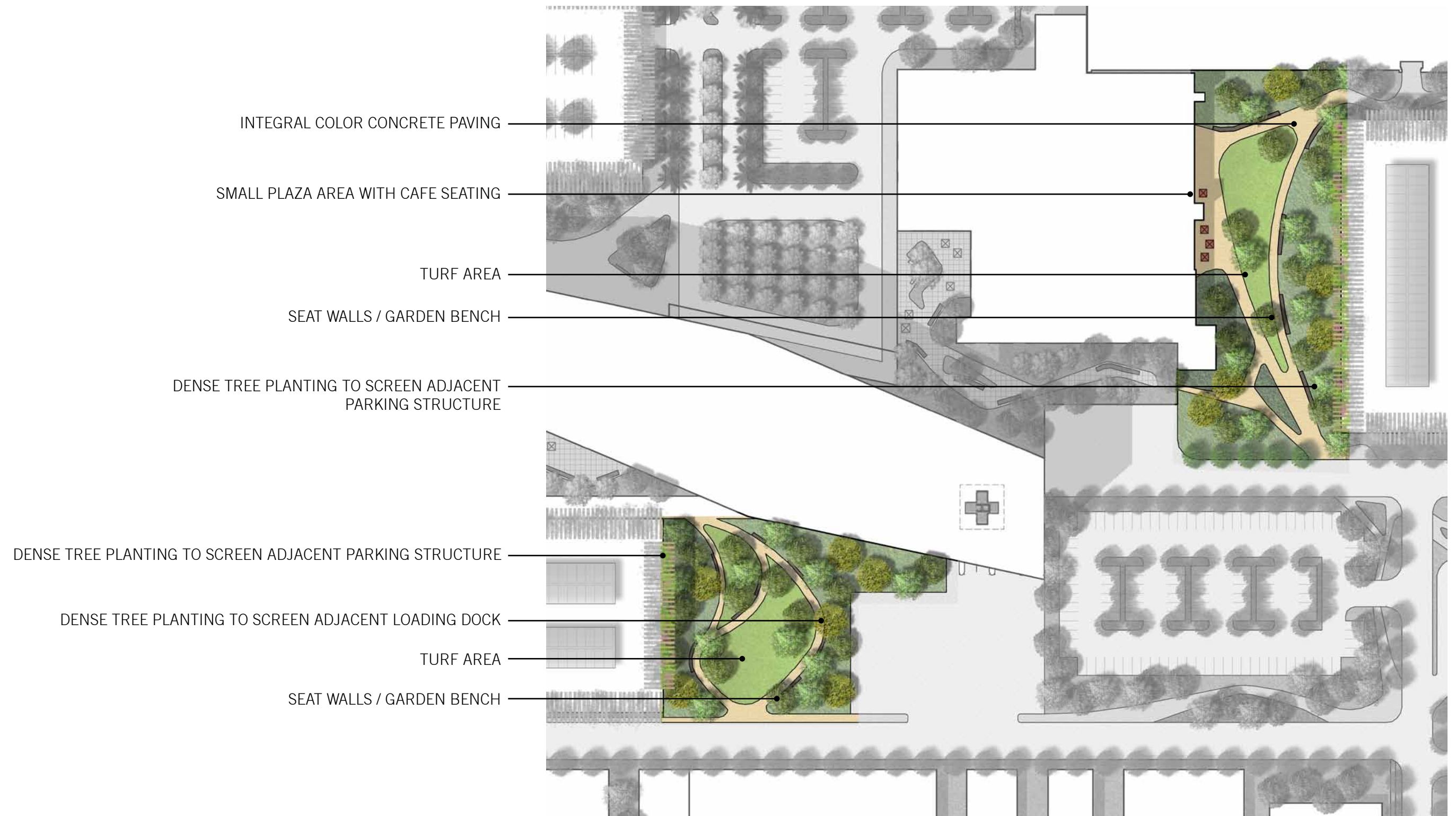


Open turf area framed by garden paths and perennial shrub planting

COURTYARD GARDENS

Two courtyard gardens along the south and east sides of the main hospital building will provide respite areas for hospital staff. These gardens will be framed with an informal mix of evergreen and deciduous trees that provide seating around a central lawn area. The lawn can be used as event space or everyday passive uses such as eating lunch or reading a magazine. The east courtyard will be heavily used by staff going to parking areas from the hospital. To accommodate this anticipated use, pedestrian circulation has been divided into two paths that provide a direct connection to the hospital, and another that connects to a small plaza area with cafe tables. To ensure maximum use of the south courtyard which has a more intimate scale, the pedestrian circulation helps create several small seating areas that can be simultaneously occupied by different groups. Shaded seating around the perimeter faces a central lawn area with a bright southern sunlight exposure.

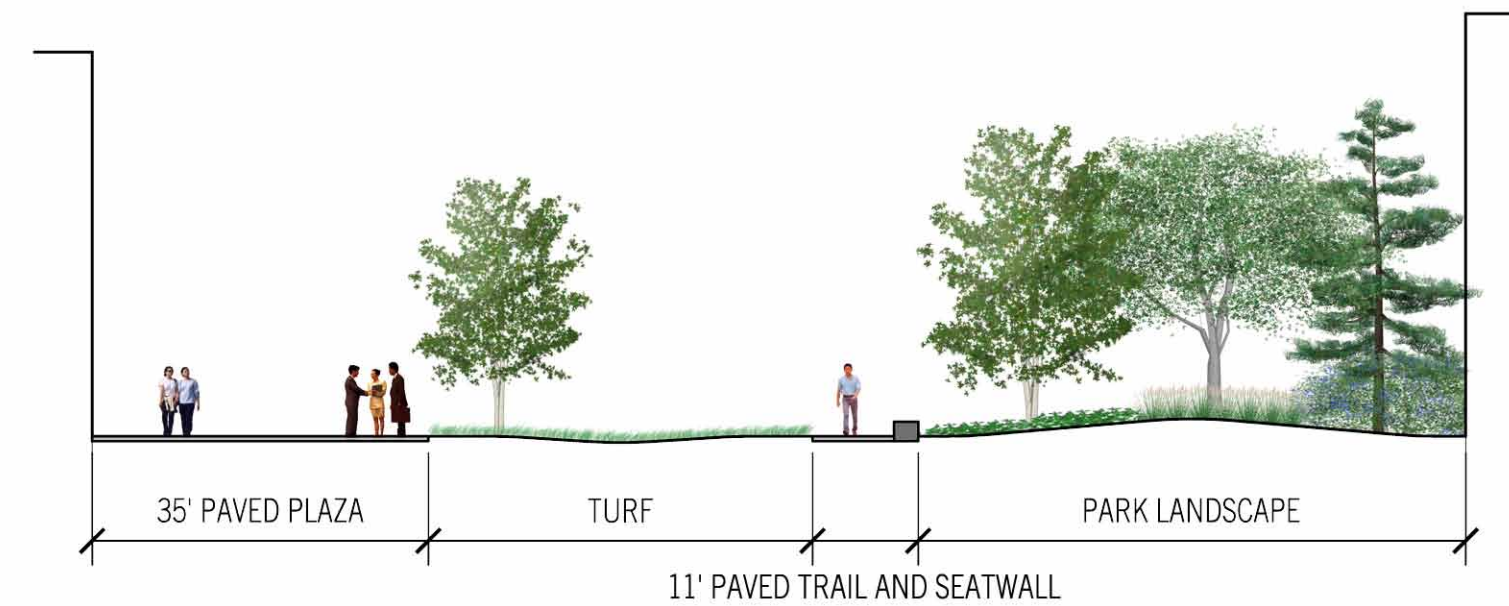




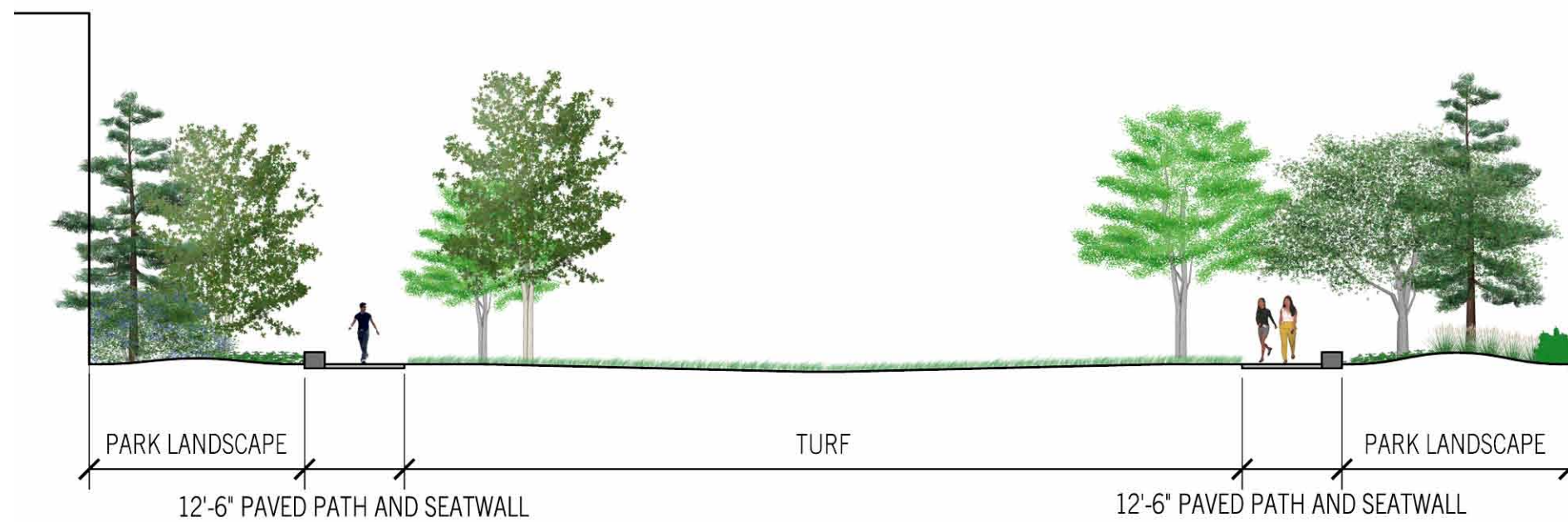
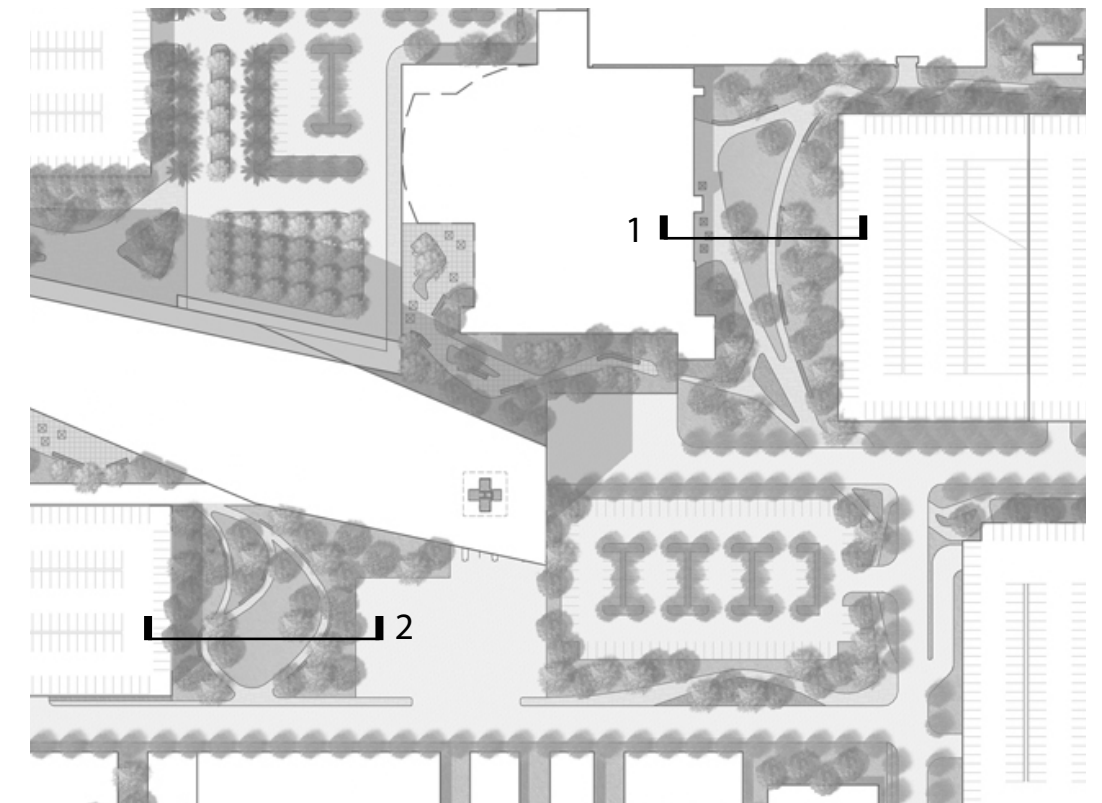
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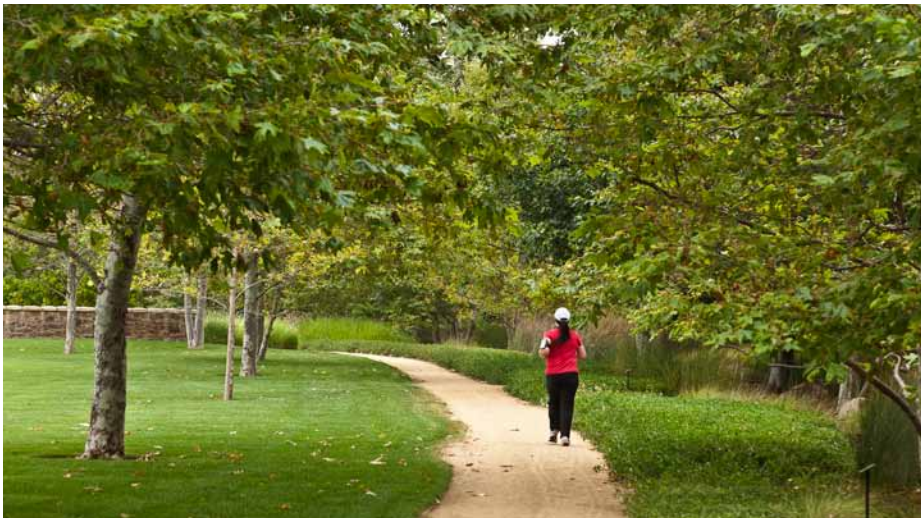
VIEW OF THE EAST HOSPITAL COURTYARD FACING SOUTH



SECTION 1 - EAST HOSPITAL COURTYARD
1"=20'



SECTION 2 - SOUTH HOSPITAL COURTYARD
1"=20'



Stabilized decomposed granite fitness trail



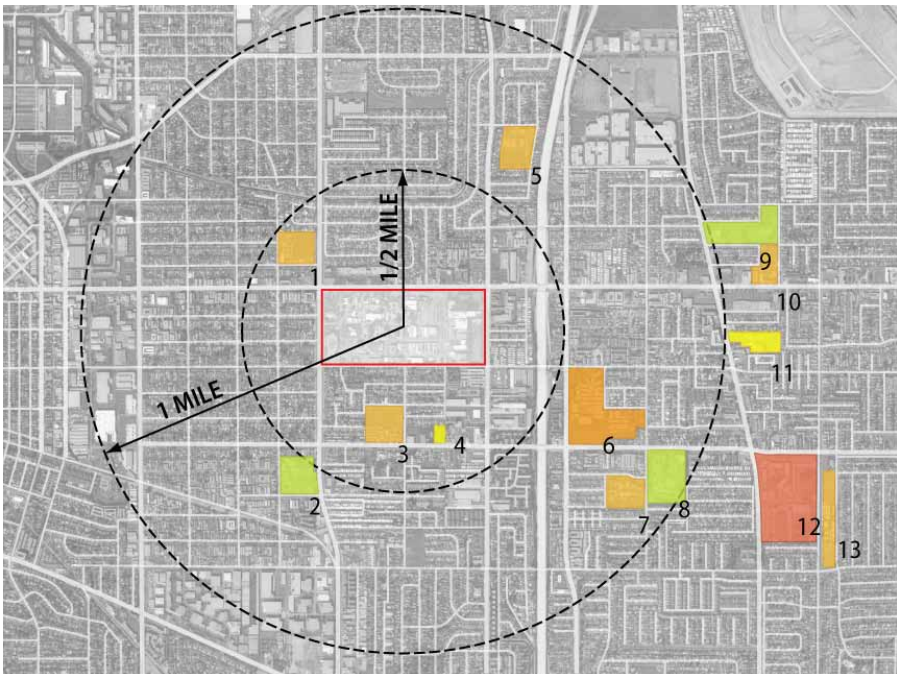
Informal park planting

WEST SIDE INTERIM PARK

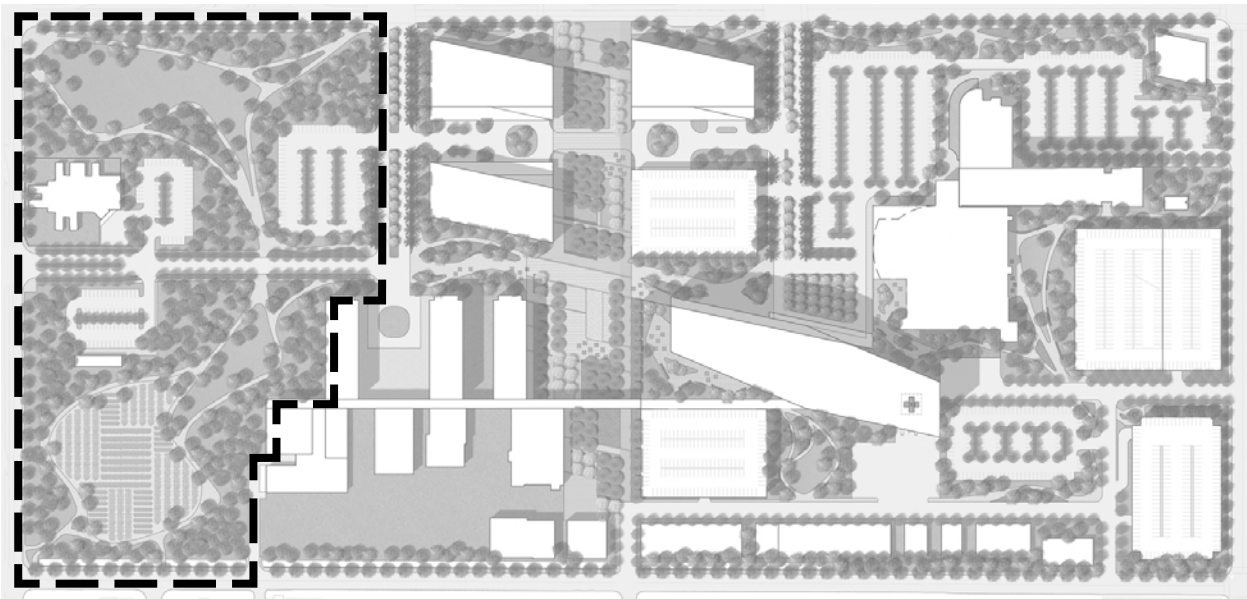
By consolidating most of the campus uses into larger buildings, the west side of the campus has become available for future hospital expansion and development. Until the County determines the best use for this land, the master plan has proposed interim uses that provide direct amenities to hospital staff and surrounding community.

The west side of the campus is divided by the west entry road into two parcels which collectively contain a 14 acre urban park. The northwest parcel features a diverse network of paths and trails through undulating landforms planted with an eclectic mix of trees and shrubs. The large central lawn space can stage both campus and community events creating a perfect medium for better engagement with the local community. A fitness trail with exercise stations are integrated into the park area which provide a unique amenity for hospital staff, and an opportunity to help educate the community about the benefits of a more active lifestyle.

The southwest parcel continues the park-like quality and fitness trail around a smaller turf area and demonstration garden that can showcase native plants or small agricultural plots. This garden can be used as an educational tool that demonstrates how to grow fruits and vegetables and potentially cooking classes that teach the community how to cook with these items. With 11 schools within a 20 to 25 minute walk of the campus, the interim parks along with county and hospital staff, can serve as a significant resource that actively helps integrates the key preventative healthcare goal; teach people how to live a healthy lifestyle by utilizing better nutrition with increased daily activity.



Local school and park context map



CARSON STREET LANDSCAPE BUFFER

OPEN TURF EVENT LAWN

SCULPTURAL LANDSCAPE BERMS

FITNESS STATION

STABILIZED DECOMPOSED GRANITE FITNESS TRAIL

TREE LINED WEST ENTRY DRIVE

COMMUNITY PARKING AREA

OPEN LAWN AREA

COMMUNITY EDUCATION FACILITY

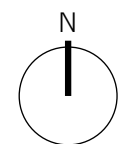
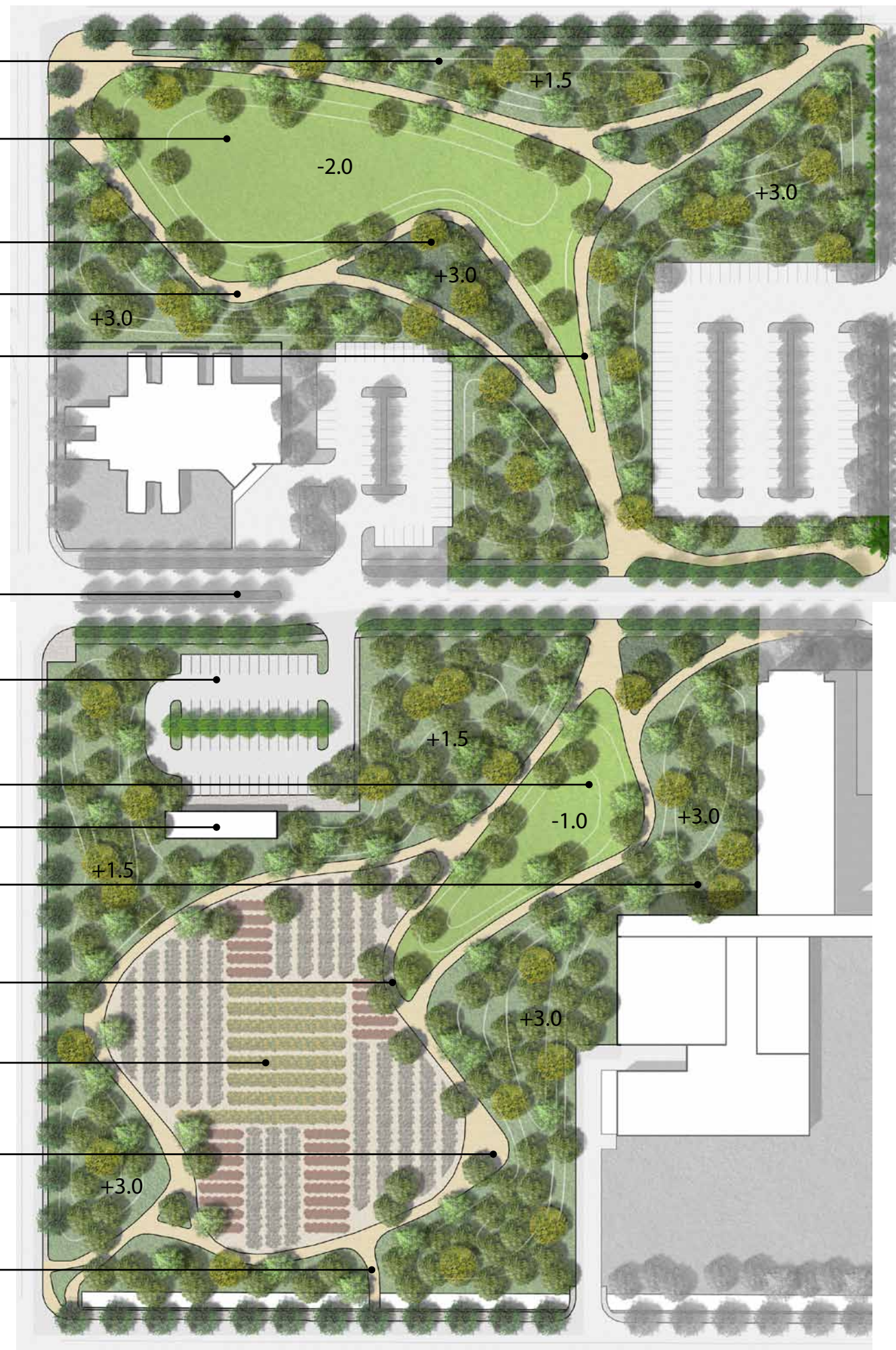
DENSE TREE SCREENING ALONG LA BIOMED EDGE

INFORMAL TREE DRIFTS

DEMONSTRATION GARDEN

FITNESS STATION

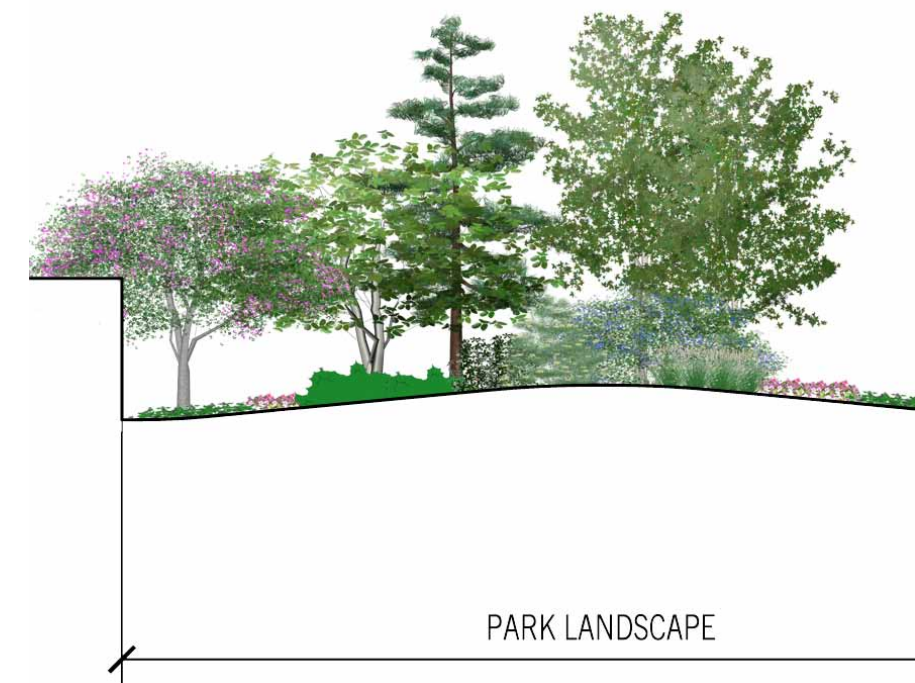
PROPOSED BRIDGE CONNECTION OVER EXISTING DRAINAGE CULVERT



1"=100'

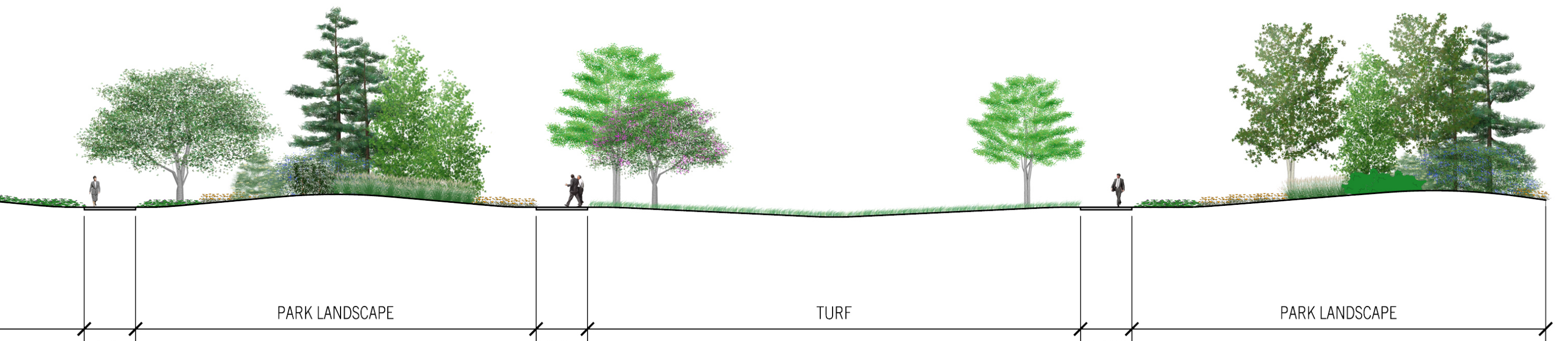
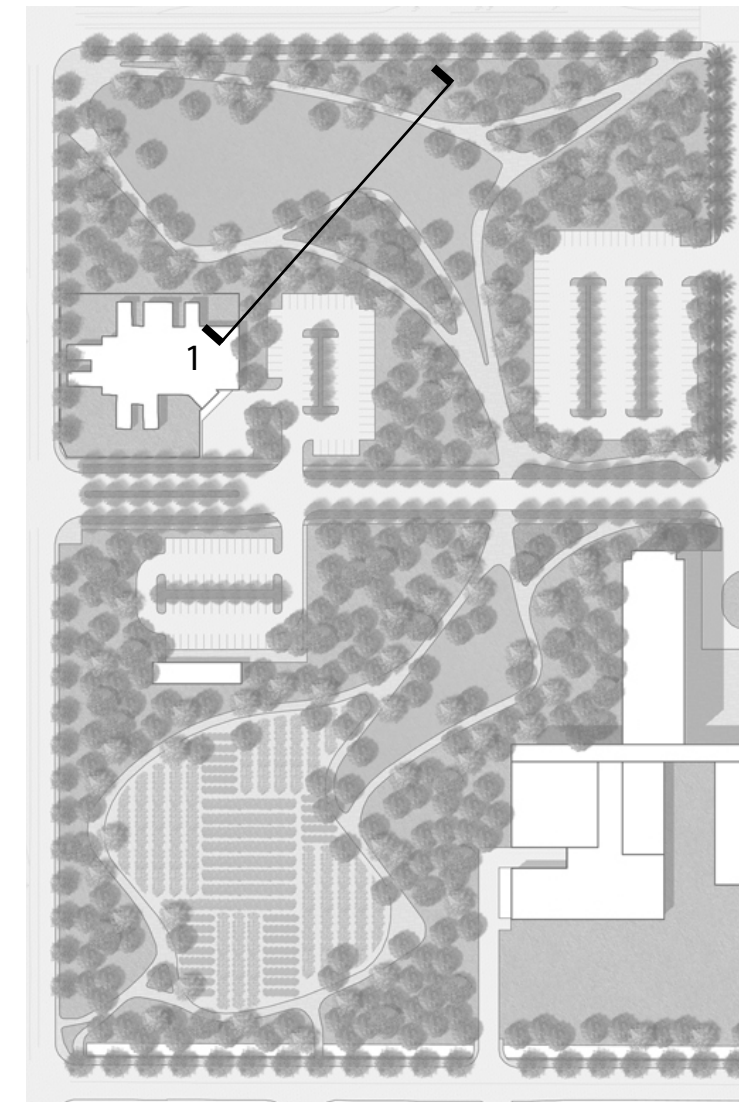


View of the northwest park open turf area



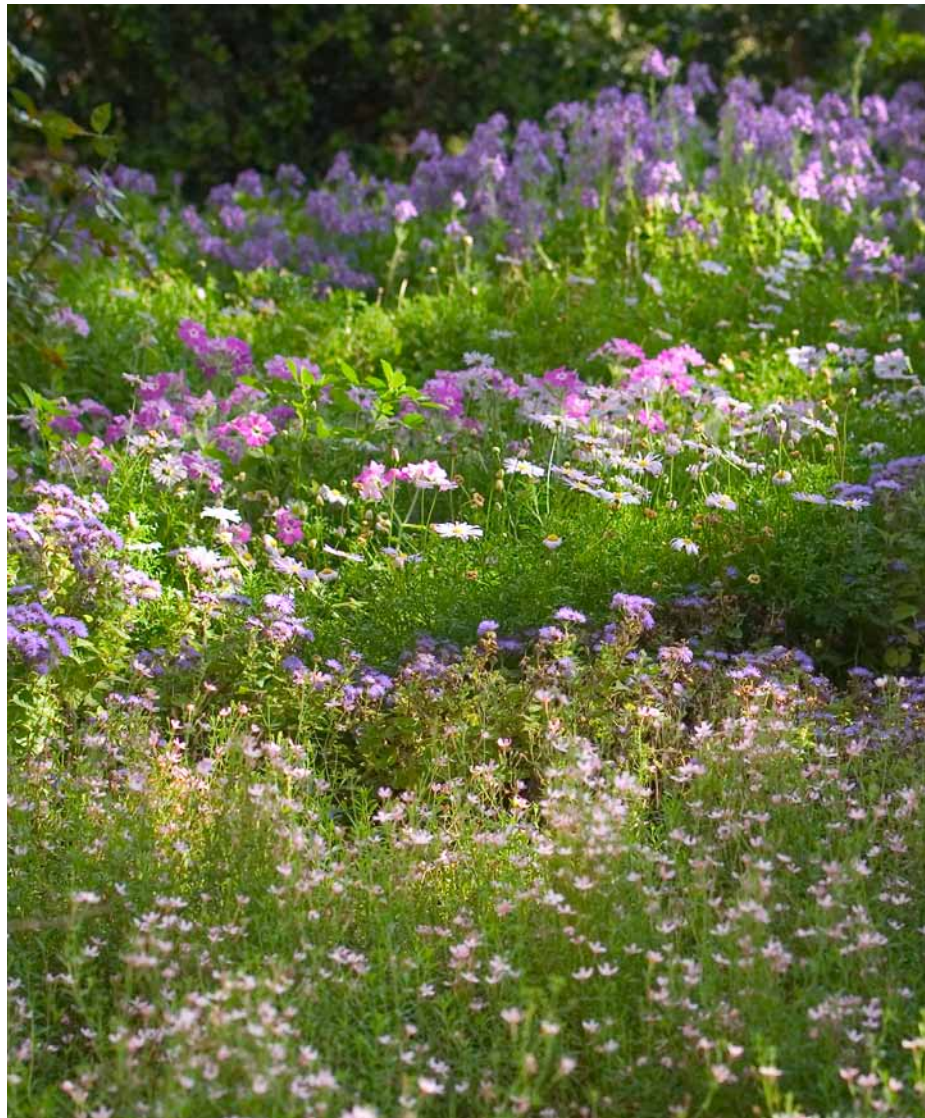


View along the park fitness trail and open turf area



SECTION 1 - NORTHWEST PARK

1"=20'



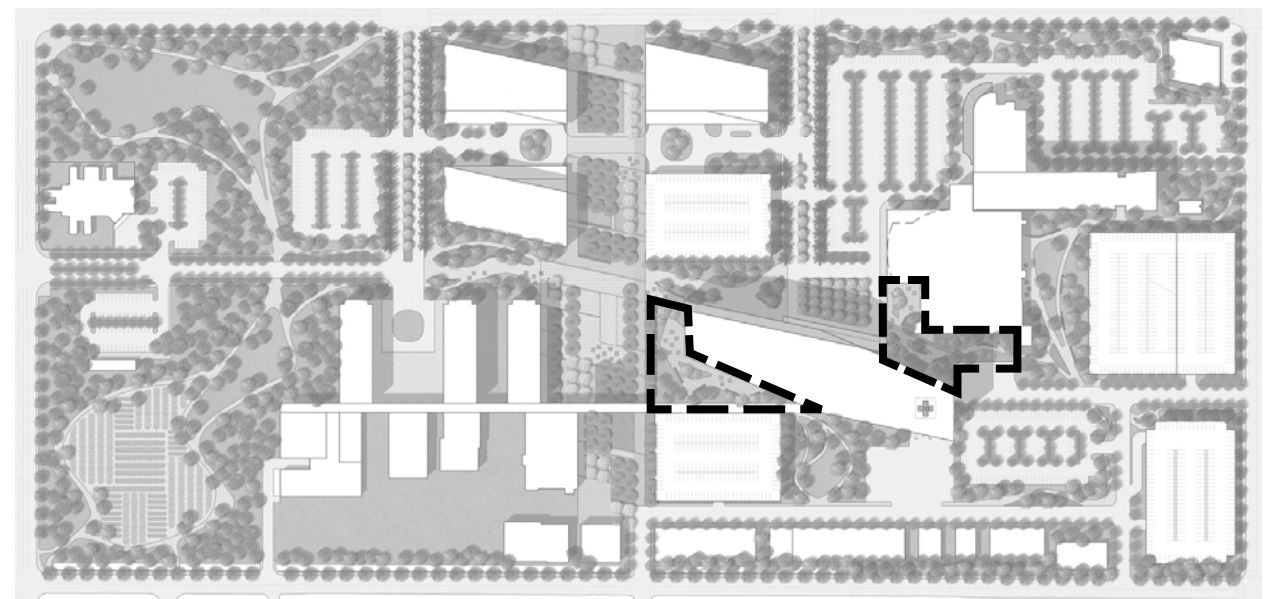
Perennial garden planting



Small garden fountain

ROOF GARDENS

The hospital roof gardens will be some of the most ornamental gardens on campus featuring flowering canopy trees with perennial shrubs, and planter pots with annual color. These healing gardens will offer a visually distinct outdoor environment that can be enjoyed by actively sitting on a shaded bench and reading a book, or from adjacent hospital rooms where patients can view from their bed. Garden amenities include benches and seat walls, cafe tables with umbrellas, and small courtyard fountains that fill the garden with the tranquil sound of falling water.



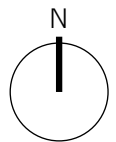
SCULPTURAL BERMS WITH FLOWERING ACCENT TREES

CAFE TABLES AND CHAIRS

SCULPTURAL BERMS WITH FLOWERING ACCENT TREES

GARDEN BENCH / SEAT WALL

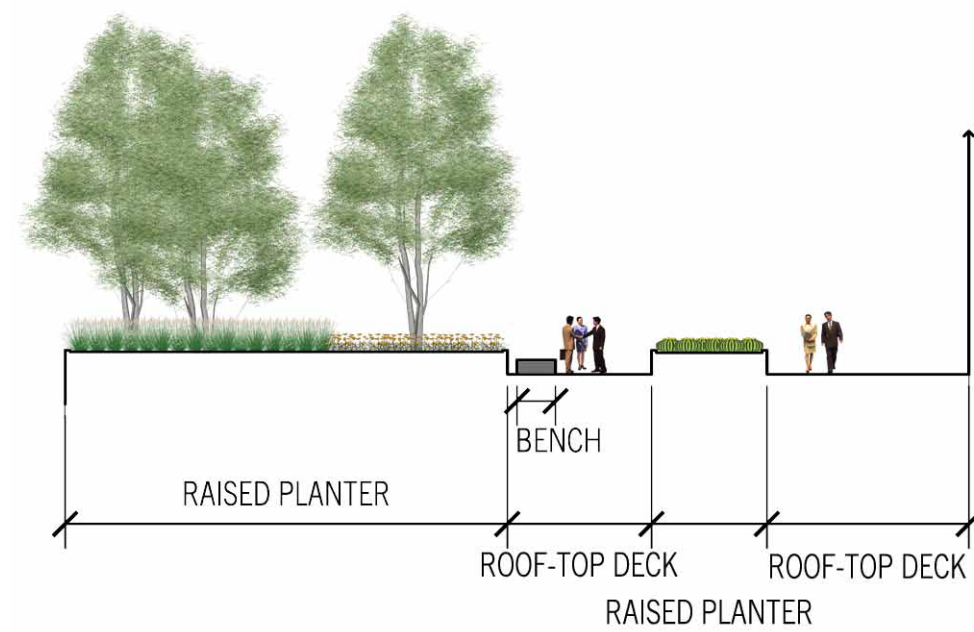
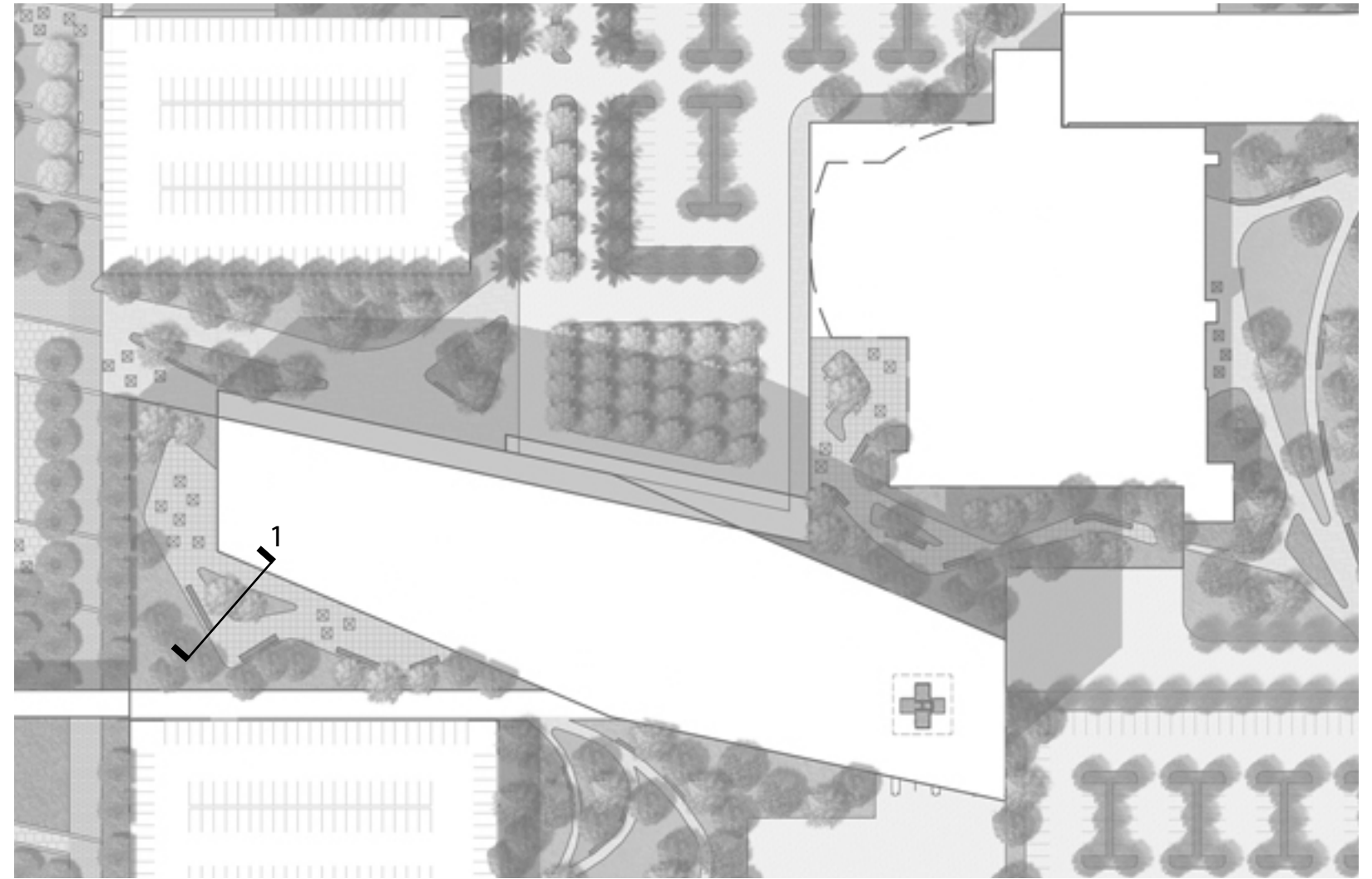
PERENNIAL GARDEN UNDERSTORY PLANTING



1"=100'



VIEW OF THE CENTRAL GARDEN AREA FROM THE ADJACENT ROOF GARDEN

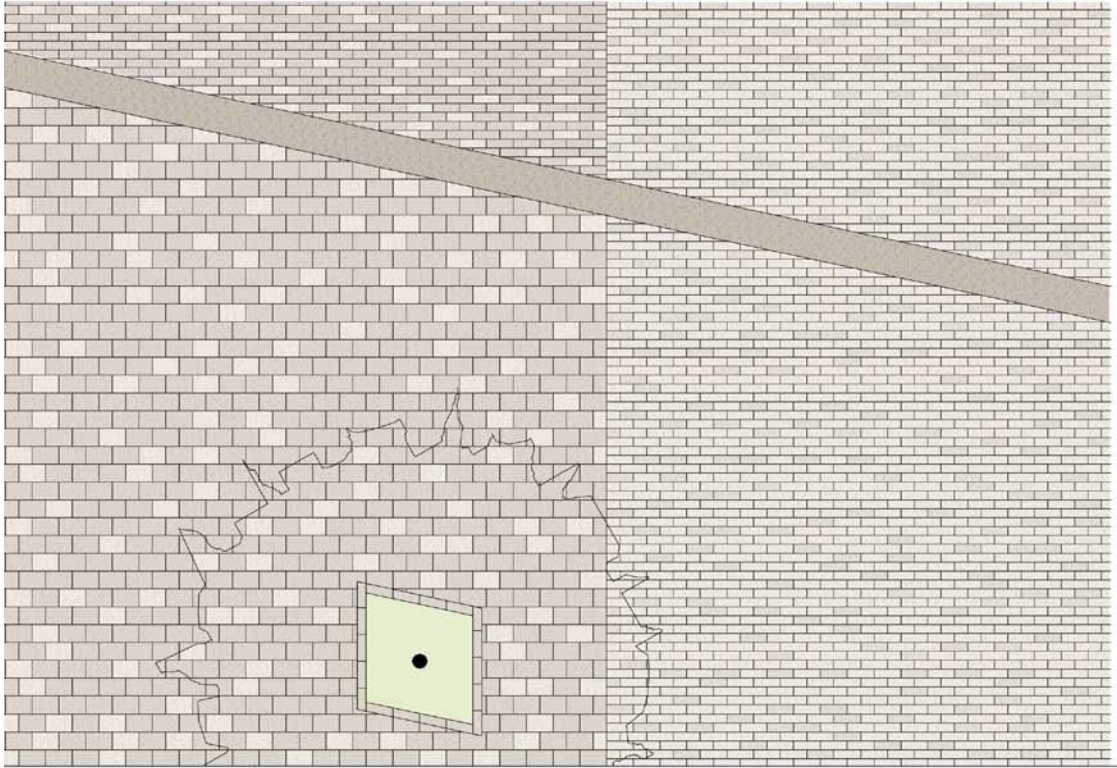


SECTION 1 - SOUTHWEST ROOF GARDEN
1"=20'

PAVING MATERIALS



Paving throughout the campus will be predominately cast-in -place concrete. To maintain a level of quality, the concrete should be integral color with sawcut joints. Hand seeded aggregate and sandblast finish may be used in appropriate areas such as courtyards and small plazas. The Central Garden Spine should feature concrete unit pavers that will give the plazas and promenades a unique character. Stabilized de-composed should be used for the park paths along the west edge of campus.



Two examples of paving in the Central Garden Spine plaza. The top image shows a variety of precast concrete unit paver modules that give a subtle texture to the plaza. The overall color of the pavers should be similar with only the angular cast-in-place concrete band providing contrast. The bottom example shows concrete paving with angular sawcut joints and a precast unit paver band.

SITE AMENITIES



Central Garden Spine fountain should have a vertical element that creates a substantial presence in the plaza area. This element can be integrated with a series of offsetting plinths have a more intimate character. To decrease long term maintenance costs, the fountain mechanics should be kept to a minimum.

The campus should contain a variety of seating types and materials. The Central Garden Spine should contain formal benches along the main north/south promenades that combine wood and steel materials. Linear stone or precast concrete seat walls will help reinforce the east/west circulation through the spine area. Cafe tables under trees that are moveable will enhance the dynamic character of the plaza. Smaller gardens and courtyards should have benches that are predominately wood. Roof gardens should feature lounge furniture.

PLANT LIST

- Trees:
- 1. *Fraxinus uhdei: Evergreen Ash
 - 2. Platanus Mexicana: Mexican Sycamore

- Shrubs and Groundcover
- 1. Callistemon ‘Little John’
 - 2. *Carissa macrocarpa, Natal Plum
 - 3. Hesperaloe parvifolia, Red Yucca
 - 4. Leucophyllum spp.
 - 5. Muhlenbergia cappilaris, Pink Muhley
 - 6. Olea ‘Little Ollie’, Dwarf Olive
 - 7. *Raphiolepis indica, India Hawthorn
 - 8. *Rosmarinus officinalis, Rosemary

*Indicates Preferred Species

PERIMETER LANDSCAPE

The perimeter landscape character is used to create an identity for the campus through a landscape framework that also acts as a passive perimeter fence, and used to enhance the pedestrian experience around the perimeter of the site.

The perimeter framework is constructed with a single tree and hedge species that wraps the site and acts as a clearly identifiable landscape element. The tree species selected are climate appropriate and have large canopies, which at maturity should provide full canopy coverage and enhance the pedestrian experience. A low hedge in the parkway along Carson Street acts to buffer the vehicular traffic to further enhance the pedestrian experience.

A climate appropriate hedge of a single species has been added to the back of walk along the perimeter landscape. The hedge, of a single species, acts as an identifiable edge treatment that wraps the site and works with the perimeter tree to create the unified framework treatment. The perimeter hedge also acts as a passive fence and can be maintained below 3’-6” to allow for sight lines into the campus.

The perimeter is broken down into three conditions. Along Carson Street the perimeter tree is centered in a hedged parkway with a second hedge at the back of walk. Along Normandie Avenue and Vermont Avenue the perimeter tree is planted in landscaped tree wells within the perimeter walk with the perimeter hedge occurring at the back of walk. Along 220 Street the perimeter tree continues in tree grates at the back of curb. Along the back of walk a hedge and vine will screen the ornamental fencing securing the drainage culvert area.



Fraxinus uhdei, Evergreen Ash



Carissa macrocarpa, Natal Plum



Rhus integrifolia, Lemonade Berry



Rosmarinus officinalis, Rosemary

PLANT LIST

- Trees:
- 1. *Jacaranda mimosifolia, Jacaranda
 - 2. Olea europea, Olive Tree
 - 3. *Washingtonia filabusta, Hybrid Fan Palm

- Shrubs and Groundcover
- 1. Agapanthus spp.
 - 2. Hemerocallis spp.
 - 3. *Hesperaloe parvifolia, Red Yucca
 - 4. *Muhlenbergia cappilaris, Pink Muhley

*Indicates Preferred Species

ENTRY LANDSCAPE

The Entry Landscape has a more ornamental plant palette than the surrounding park and perimeter landscapes which will significantly accent the entry experience. The more noticeable plant material will also act as way-finding devise, directing people to the project entries. The height of the trees will be taller than the surrounding perimeter streetscape which will serve as a gateway that enhances the entry experience.

There are two entry conditions: the main entries and the secondary entries. The main entries will consist of an alternating ornamental canopy tree and Hybrid Fan Palms. The secondary entrances will consist of the ornamental canopy tree only planted in formal allees with sidewalks separated from the street by a eight foot parkway.



Jacaranda mimosifolia, Jacaranda



Washingtonia filabusta, Hybrid Fan Palm



Hesperaloe parvifolia, Red Yucca



Muhlenbergia capillaris, Pink Muhley

CENTRAL SPINE LANDSCAPE

PLANT LIST

- Trees:
- 1. *Cercis occidentalis, Western Redbud (Accent Tree)
 - 2. Chilopsis linearis, Desert Willow (Accent Tree)
 - 3. Olea europea, Olive Tree (Main Tree)
 - 4. *Dalbergia sissoo, Indian Rosewood (Main Tree)

- Shrubs and Groundcover
- 1. *Aeonium spp.
 - 2. *Agave attenuate, Foxtail Agave
 - 3. Bougainvillea spp.
 - 4. *Dudleya spp.
 - 5. *Echeveria spp.
 - 6. Festuca mairei, Atlas Fescue
 - 7. *Furcrea foetida, Mauritius Hemp
 - 8. Grevillea spp.
 - 9. Hakea spp.
 - 10. Hebe spp.
 - 11. Lantana spp.
 - 12. *Kniphofia uvaria, Red Hot Poker
 - 13. *Phormium tenax, New Zealand Flax
 - 14. *Sedum spp.
 - 15. *Senecio talinoides mandraliscae, Blue Chalksticks

*Indicates Preferred Species

The Central Spine Landscape acts as the heart of the project and should have the most ornamental landscape. The plant palette is made up of native and low-water-use plants that have a highly ornamental value. The ground plane plants should be arranged in mono-culture groups that result in a highly graphic, textured, and colorful landscape. To reinforce the graphic character of the ground plane the trees should be arranged in formal bosques and consist of two tree species. The main species is an evergreen to semi-evergreen canopy tree that is interrupted by north/south allees of secondary accent trees. The accent tree consists of a more ornamental flowering species and provides seasonality to the central spine area.



Cercis occidentalis, Western Redbud



Dalbergia sissoo, Indian Rosewood



Aeonium spp.



Agave attenuata, Foxtail Agave



Dudleya spp.



Echeveria, spp



Furcraea foetida, Mauritius Hemo



Kniphofia uvaria, Red Hot Poker



Phormium tenax, New Zealand Flax



Sedum spp.



Senecio talinoides mandraliscae, Blue Chalksticks

PLANT LIST

Trees:

- 1. *Alnus rhombifolia, White Elder (R,T)
- 2. *Chilopsis linearis, Desert Willow (F,R)
- 3. Juglans californica, California Black Walnut (F,C)
- 4. *Pinus coulteri, Coulter Pine (F)
- 5. Pinus sabiniana, Foothill Pine (F)
- 6. Pinus torreyana, Torrey Pine (F)
- 7. *Plantanus racemosa, California Sycamore (F,R,T)
- 8. *Quercus agrifolia, Coast Live Oak (F)
- 9. *Quercus lobata, Valley Oak (F)
- 10. *Umbellularia californica, California Bay Laurel (F,R,T)

Shrubs

- 1. Agave spp., Agave (M,S)
- 2. *Arctostaphylos spp., Manzanita (C,S)
- 3. Berberis nevinii, Nevin’s barberry (C,S)
- 4. *Ceanothus spp, California Lilac (C,S)
- 5. Dendromecon hardfordii, Island Bush Poppy (C,S)
- 6. Dudleya spp., Dudleya (M,S)
- 7. *Fremontodendron californica, Flannel Bush (C,S)
- 8. Garrya elliptica, Coast Silk Tassel (C,S,R)
- 9. *Heteromeles arbutifolia, Toyon (C,S,R)
- 10. Lavatera assurgentifolia, Tree Mallow (C,S,R)
- 11. Malosma laurina, Laurel Sumac (C,S)
- 12. Myrica californica, Pacific Wax Myrtle (C,S,R)
- 13. Prunus illicifolia, Hollyleaf Cherry (C,S)
- 14. *Rhamnus californica, California Coffeeberry (C,S,R)
- 15. *Rhus integrifolia, Lemonade Berry (C,S)
- 16. Rhus ovata, Sugar Bush (C,S)
- 17. *Salvia spp, Sage (California Native Species Only) (C,S,M)

Groundcover

- 1. *Arctostaphylos spp., Groundcover Manzanita (F,M,S)
- 2. *Baccharis pilularis ‘Pigeon Point’, Prostrate Coyote Bush (F,M,S)
- 3. Calamagrotis foliosus, Mendocino Reed Grass (M,R)
- 4. Carex spissa, San Diego Sedge (M,R)
- 5. *Ceanothus spp., Groundcover California Lilac (F,M,S)
- 6. Eriogonum fasciculatum, Groundcover Buckwheat (F,M,S)
- 7. Iva hayesiana, Poverty Weed (F,S,R)
- 8. *Leymus condensatus ‘Canyon Prince’, Giant Wild Rye (M,R)
- 9. *Muhlenbergia rigens, Deer Grass (M,S,R)
- 10. Salvia spp, Groundcover Sage (F,M,S,R)

*Indicates Preferred Species

PARK & TRAIL LANDSCAPE

The park landscape consists of a series of informal California native chaparral, forest, meadow, and riparian gardens that surround a drought tolerant lawn suitable for play and exercise. The California native plant material is set in large drifts that draw the user into and through the park and trail landscapes. The adjoining trail landscape continues plant material and forms used in the park to create an informal park-like landscape that meanders through the campus providing a setting for an exercise trail that creates a circuit around the campus.

The park and trail landscape plants consist entirely of California native species which are selected for their climate appropriateness, low water use, low maintenance, informal character, seasonality, and variety of visual interest. California natives were also selected to give the appearance of hiking through the local open spaces and to preserve and promote the natural history of the region.

The California native plants should be set into plant communities based on their water and care needs in order to minimize water use and maximize plant health. The plant list includes a key at the end of each species that indicates which plant community is acceptable for each plant.

- “F” = Forest/Forest Understory
- “C” = Chaparral
- “M” = Meadow
- “S” = Scrubland
- “R” = Riparian/Wetland
- “T” = Tree suitable to be planted in Turf



Chilopsis linearis, Desert Willow



Pinus coulteri, Coulter Pine



Quercus agrifolia, Coast Live Oak



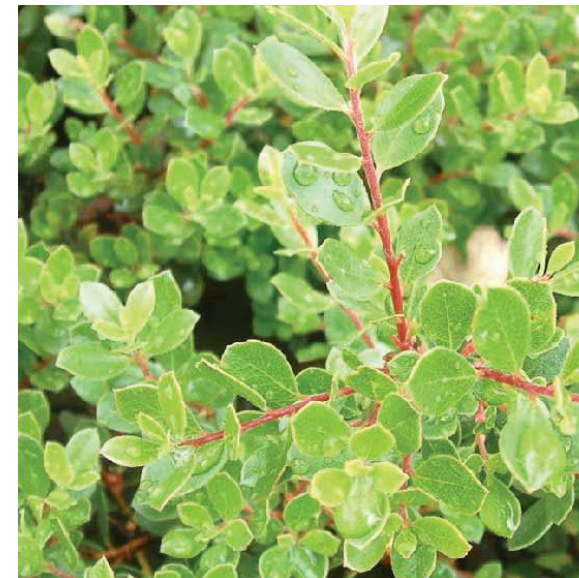
Quercus lobata, Valley Oak



Ubellularia californica, California Bay Laurel



Arctostaphylos spp, Shrub Form Manzanita



Arctostaphylos spp, Groundcover Form Manzanita



Ceanothus spp., Shrub Form California Lilac



Fremontodendron californica, Flannel Bush



Heteromeles arbutifolia, Toyon



Leymus condensatus 'Canyon Prince', Giant Wild Rye



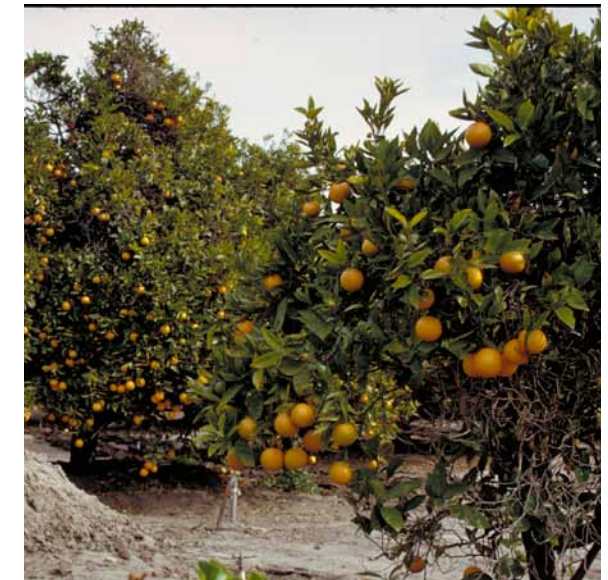
Muhlenbergia rigens, Deer Grass

EDUCATIONAL GARDENS

The Educational Gardens are an interim use designated as Future Development and act as an educational tool for the community. Multiple rotating garden programs can be showcased in conjunction with preventive care curriculum. Programming options could include community produce gardens and orchards in conjunction with healthy eating classes; bio-remediation wetlands with environmental pollution classes, or California Native gardens with hiking or outdoor exercise classes.



Community Produce Gardens



Community Agriculture/Orchards



Wetlands and Bio-Swale Education



Xeric and Native Plant Demonstration and Gar-

PLANT LIST

Trees:

- 1. *Alnus rhombifolia, White Alder
- 2. Platanus racemosa, California Sycamore
- 3. Populus fremontii, Western Cottonwood
- 4. Salix laevigata, Red Willow
- 5. *Tipuana tipu, Tipu Tree (Do not plant in swales.)

Shrubs & Groundcover for Swales

- 1. *Carex divulsa, Berkley Sedge
- 2. Carex pansa, California Meadow Sedge
- 3. Carex spissa, San Diego Sedge
- 4. Juncus effuses, Common Rush
- 5. *Juncus patens, Common Rush
- 6. Festuca mairei, Atlas Fescue
- 7. Leynus condensatus ‘Canyon Prince’, Giant Wild Rye
- 8. *Lobelia laxiflora, Mexican Lobelia
- 9. Muhlenbergia rigens, Deer Grass

Perimeter Hedge

- 1. Carissa macropcarpa, Natal Plum
- 2. *Ligustrum ‘Taxanum’, Privet
- 3. Raphiolepis spp., India Hawthorn
- 4. *Rhus integrifolia, Lemonade Berry

*Indicates Preferred Species

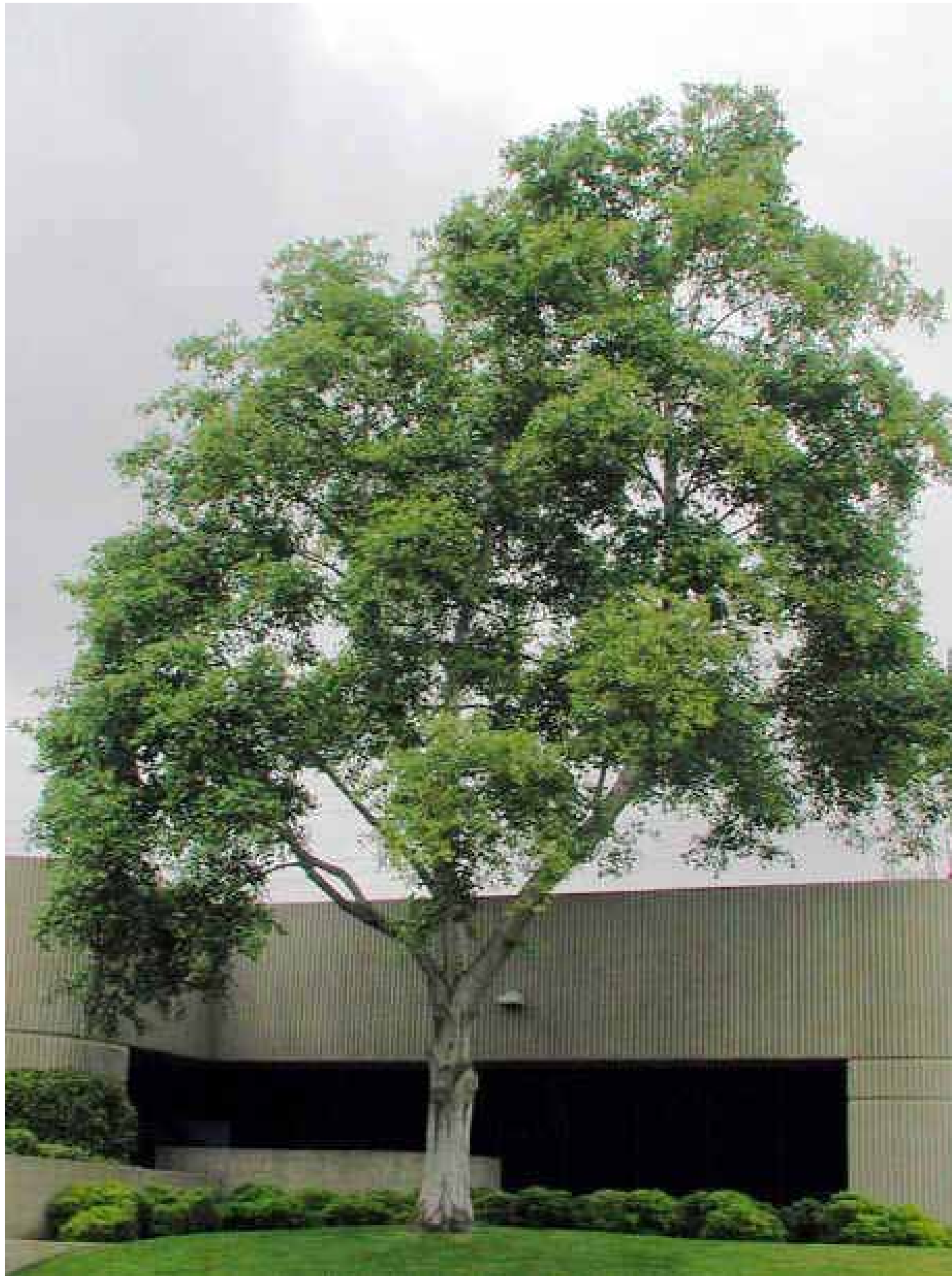
PARKING LOT LANDSCAPE

The Parking Lot Landscape consists of two planting types: a bio-swale planting and a perimeter planting. Both of which consist of plants that are native or climate appropriate and adaptable to the unique conditions found in each of the planting area.

The bio-swale planting areas occur on the interior of each lot. All parking lot runoff should be directed to the planting areas which act as a detention basin for storm run-off. Due to seasonal conditions the trees, shrubs and groundcover selected for these areas can handle periodic submersions and long periods of saturated soil.

The perimeter planting consists of a single hedge species that wraps the parking lot. The hedge acts as a screening devise, screening parked cars from the adjacent campus.

The trees in each parking lot should consist of a single tree species that is adaptable to the parking lot conditions (swale or no swale). Trees should be planted at a size and spacing that minimizes the heat island effect creating by the parking lots.



Alnus rhombifolia, White Alder



Tipuana tipu, Tipu Tree



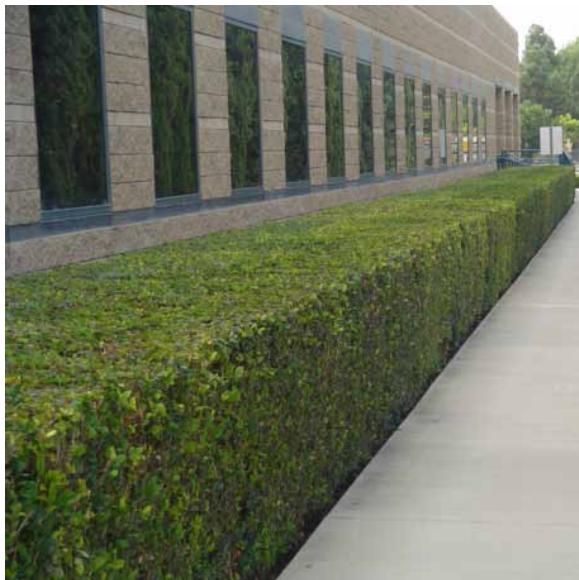
Carex divulsa, Berkley Sedge



Juncus patens, Common Rush



Lobelia laxiflora, Mexican Lobelia



Ligustrum j. 'texanum, Privet



Rhus integrifolia, Lemonade Berry

ROOF TOP GARDENS

The Roof-Top Gardens continue the graphic character of the central spine. The major difference between the Central Spine and Roof-Top Gardens is the plant palette. Due to conditions normally associated with roof-top planting the plant palette for the gardens has been pared down to focus on plants that thrive in shallower soil profiles and require less water and maintenance.

PLANT LIST

- Trees:
- 1. *Cercis occidentalis, Western Redbud (Accent Tree)
 - 2. *Olea europea, Olive Tree (Main Tree)

- Shrubs and Groundcover
- 1. *Aeonium spp.
 - 2. Agave attenuate, Foxtail Agave
 - 4. Dudleya spp.
 - 5. *Echeveria spp.
 - 6. *Festuca mairei, Atlas Fescue
 - 7. Furcraea foetida, Mauritius Hemp
 - 11. *Lantana spp.
 - 14. *Sedum spp.
 - 15. Senecio talinoides mandraliscae, Blue Chalksticks

*Indicates Preferred Species



Cercis occidentalis, Western Redbud



Olea europea, Olive Tree



Aeonium spp.



Echeveria, spp



Festuca mairei, Atlas Fescue



Lantana spp.



Sedum spp.



04 IMPLEMENTATION



PHASING



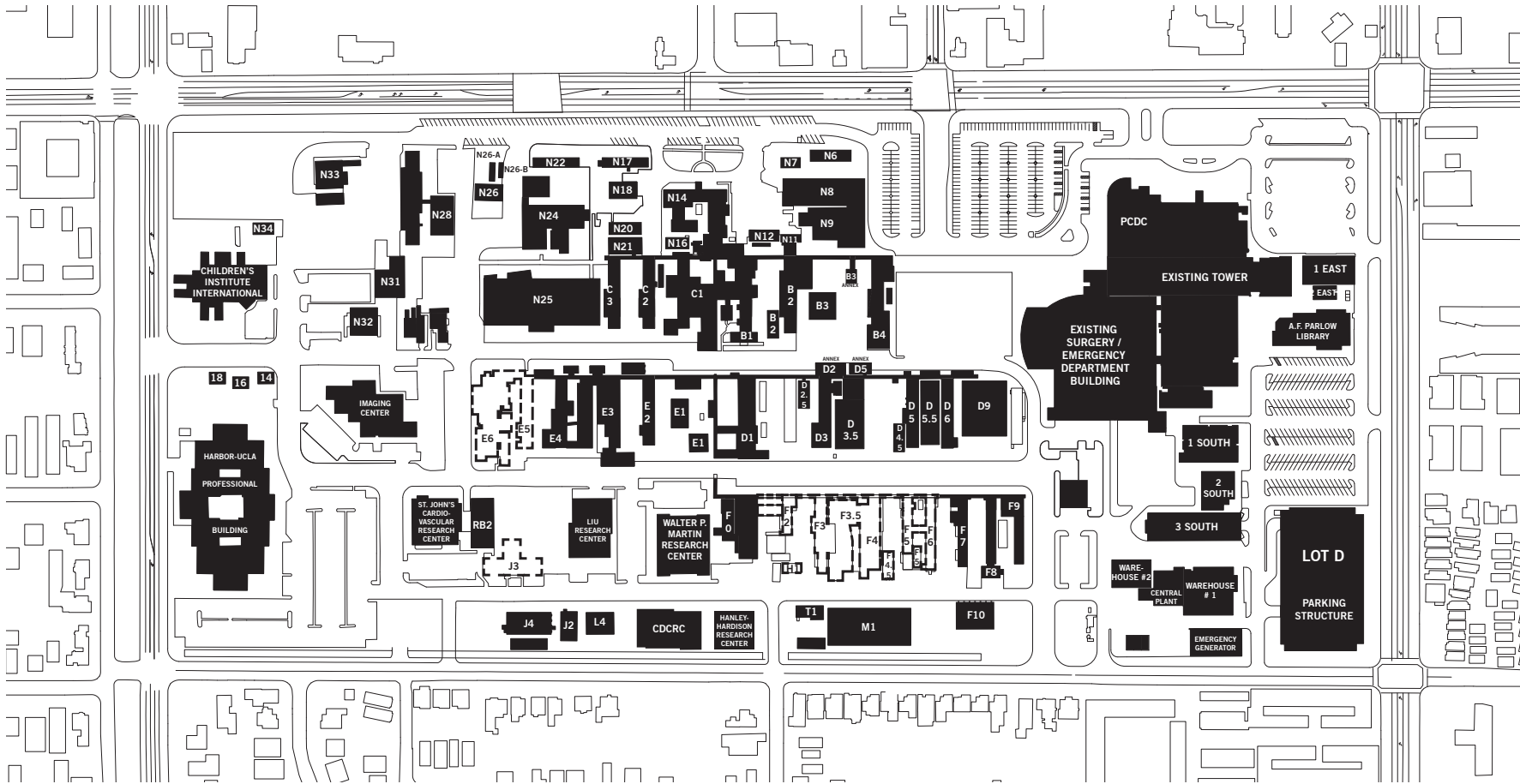
The ability to serve patients and therefore maintain continuous campus operations is of paramount importance to the Harbor-UCLA community. The diagrams on the following pages illustrate a strategy to maintain continuous campus operations by grouping major construction into phases that would be implemented over time. These phases have been arranged to follow the phasing designed for the LA BioMed Campus Master Plan as close as possible.

Each phase is shown with a ‘Demolish’ and ‘Build’ sub-phase to accommodate the relocation of existing campus program. Final phasing and implementation of future campus construction projects will be contingent on further study and findings by the future project management teams; this phasing sequence is not final and should be used as a guide to how the Campus master plan may be completed.

PHASE 01

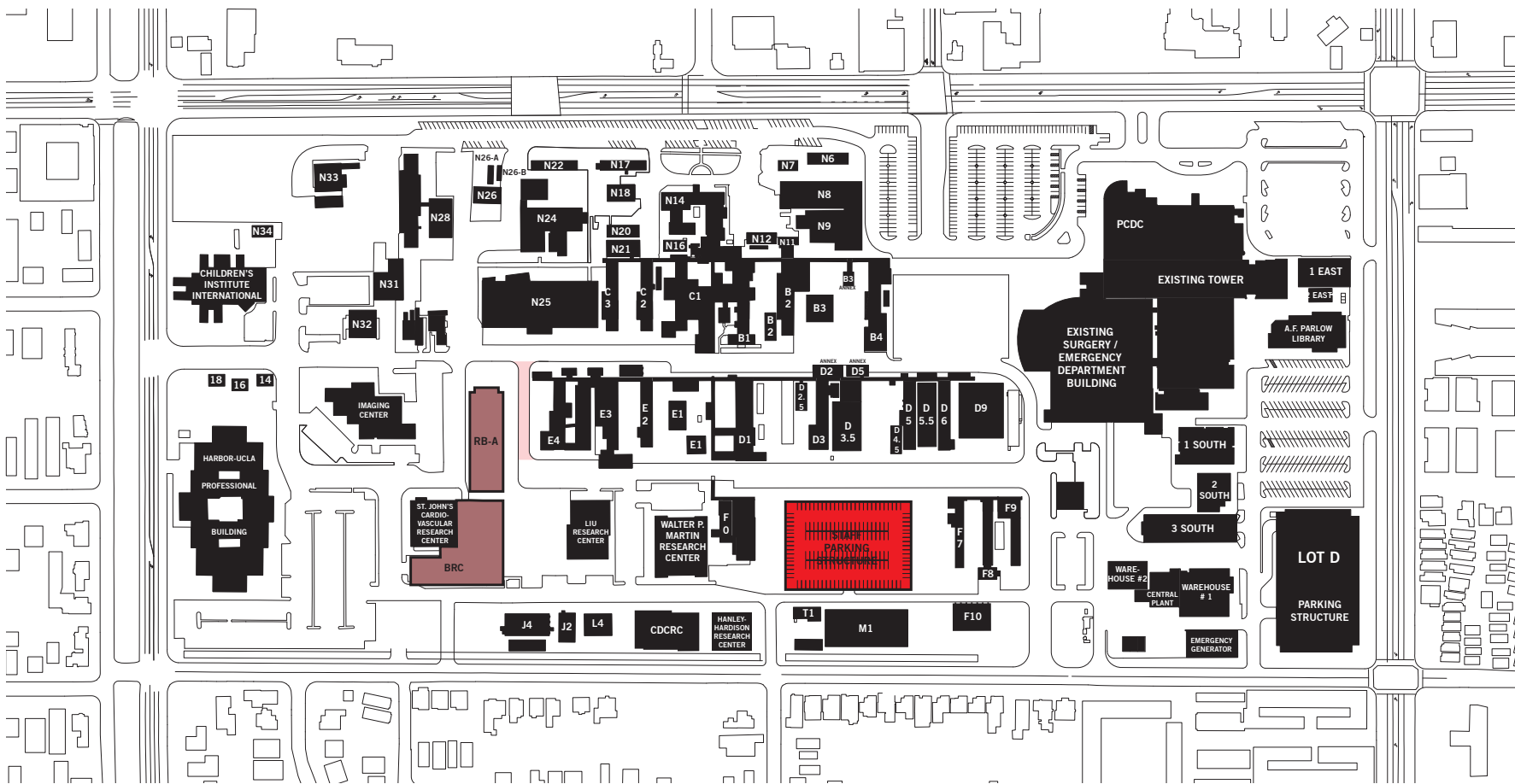
DEMOLISH

- The initial phase of the master plan requires the demolition and temporary relocation of various campus facilities buildings to clear the site for the new Staff Parking Structure
- Many of the noted buildings are currently vacant. Occupied areas will need to be relocated into on-site temporary locations.



BUILD

- The Staff Parking Structure is constructed on the southeast end of the site
- LA BioMed CDCRC is under construction just west of the existing Hanley Hardison Research Center, to be completed in September 2012.
- LA BioMed buildings RB-A and the BRC are constructed on the west end of the LA BioMed Campus. .
- The proposed Parking Structure is served by an existing water line that is currently serving facilities being demolished. Provide plumbing for future water line to be built in Phase 03.



LEGEND

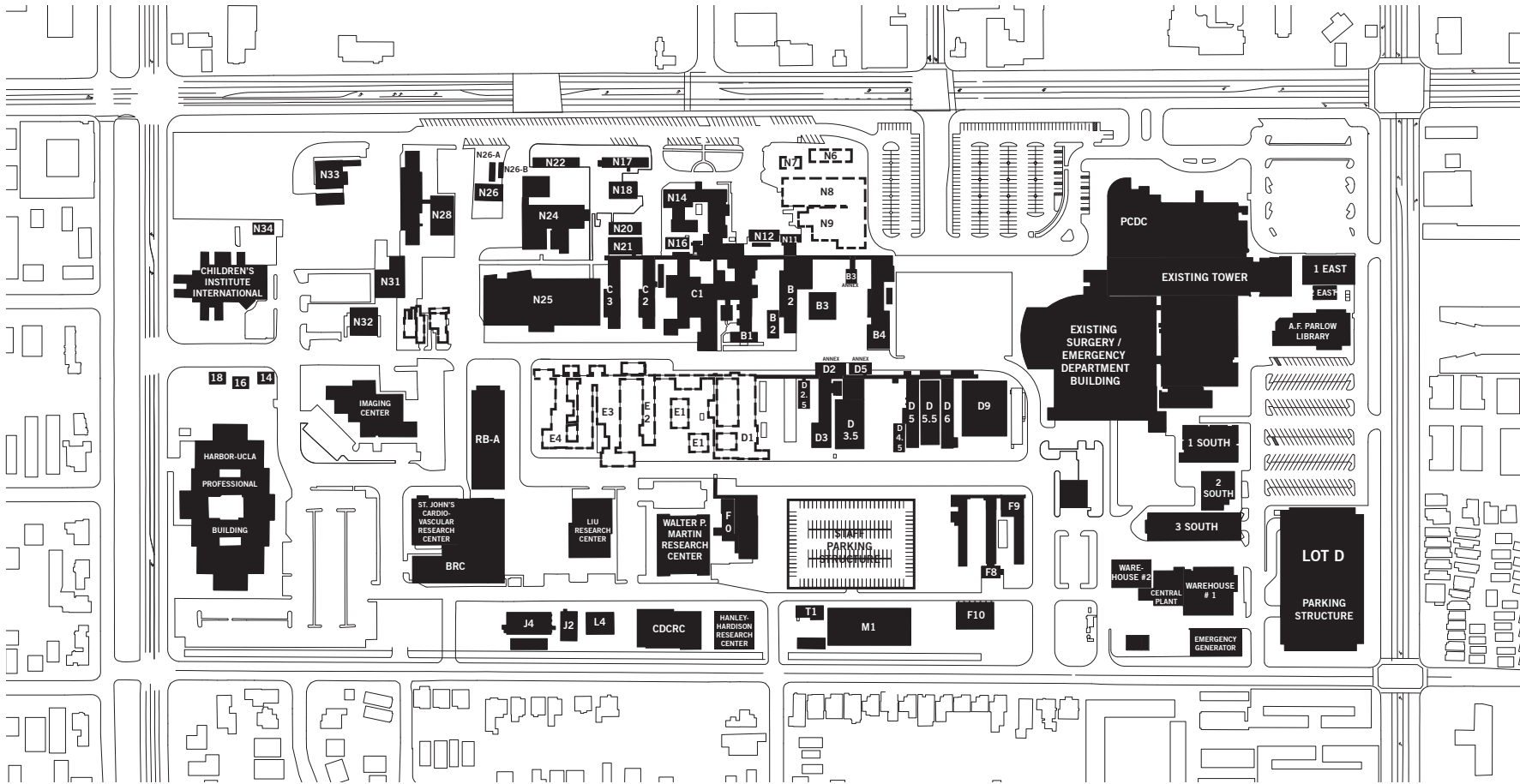
- Building
- Building Under Construction
- LA BioMed Building under construction
- Building to be demolished



PHASE 02

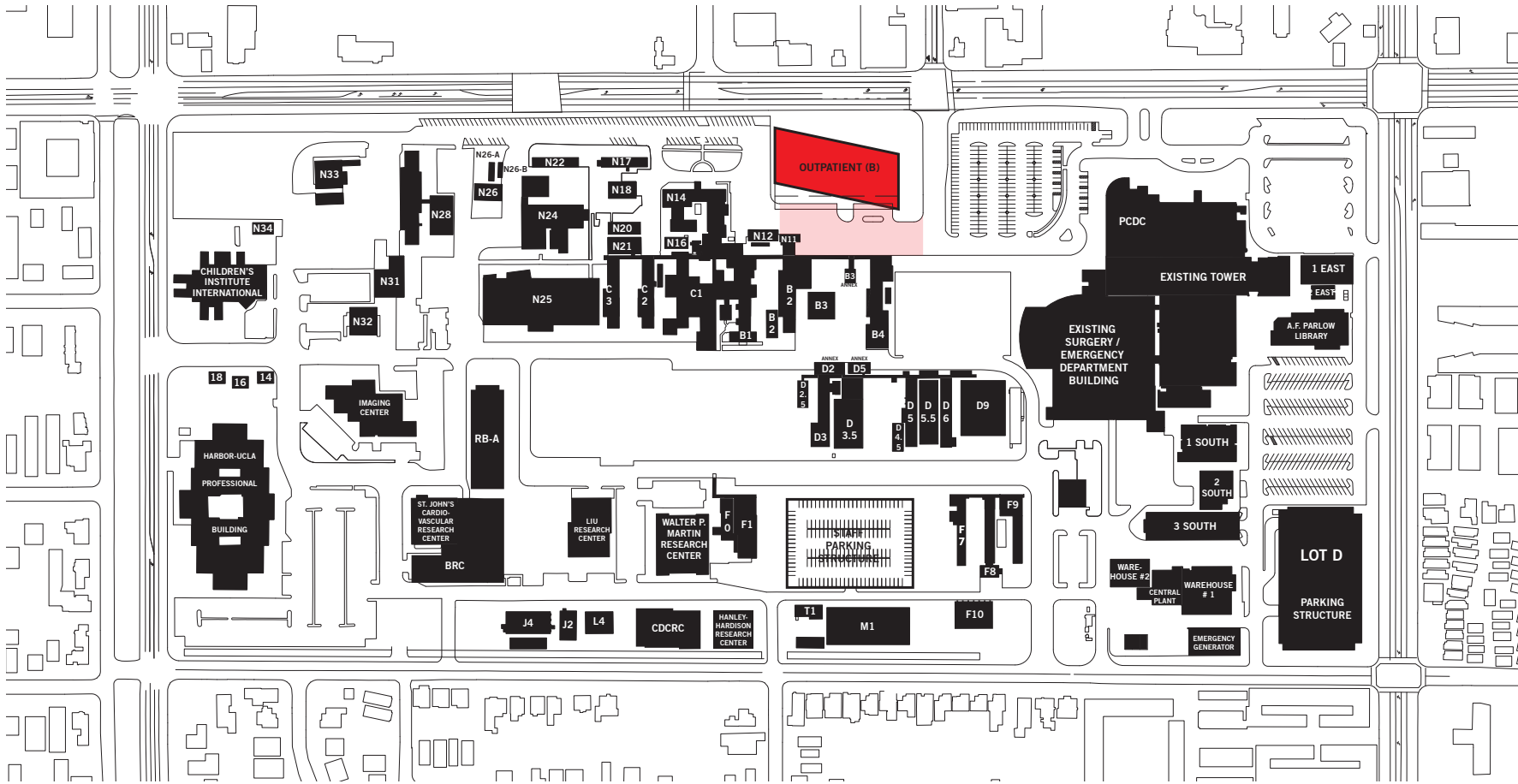
DEMOLISH

- The second phase requires the demolition and temporary relocation of Medical Records and Radiology Files at the north end of the campus as well as a group of temporary bungalows occupied by LA BioMed near the center of the site.
- These functions will need to be relocated into on-site or off-site temporary locations



BUILD

- Outpatient Building B is constructed on the north end of the campus. Drop-off and service entrances are integrated into the existing vehicular circulation paths.
- Outpatient Building B is served by a connection to current sewer and water serving the demolished Medical Records and Radiology building. Plumb Outpatient Building A for future infrastructure built in Phase 03.



LEGEND

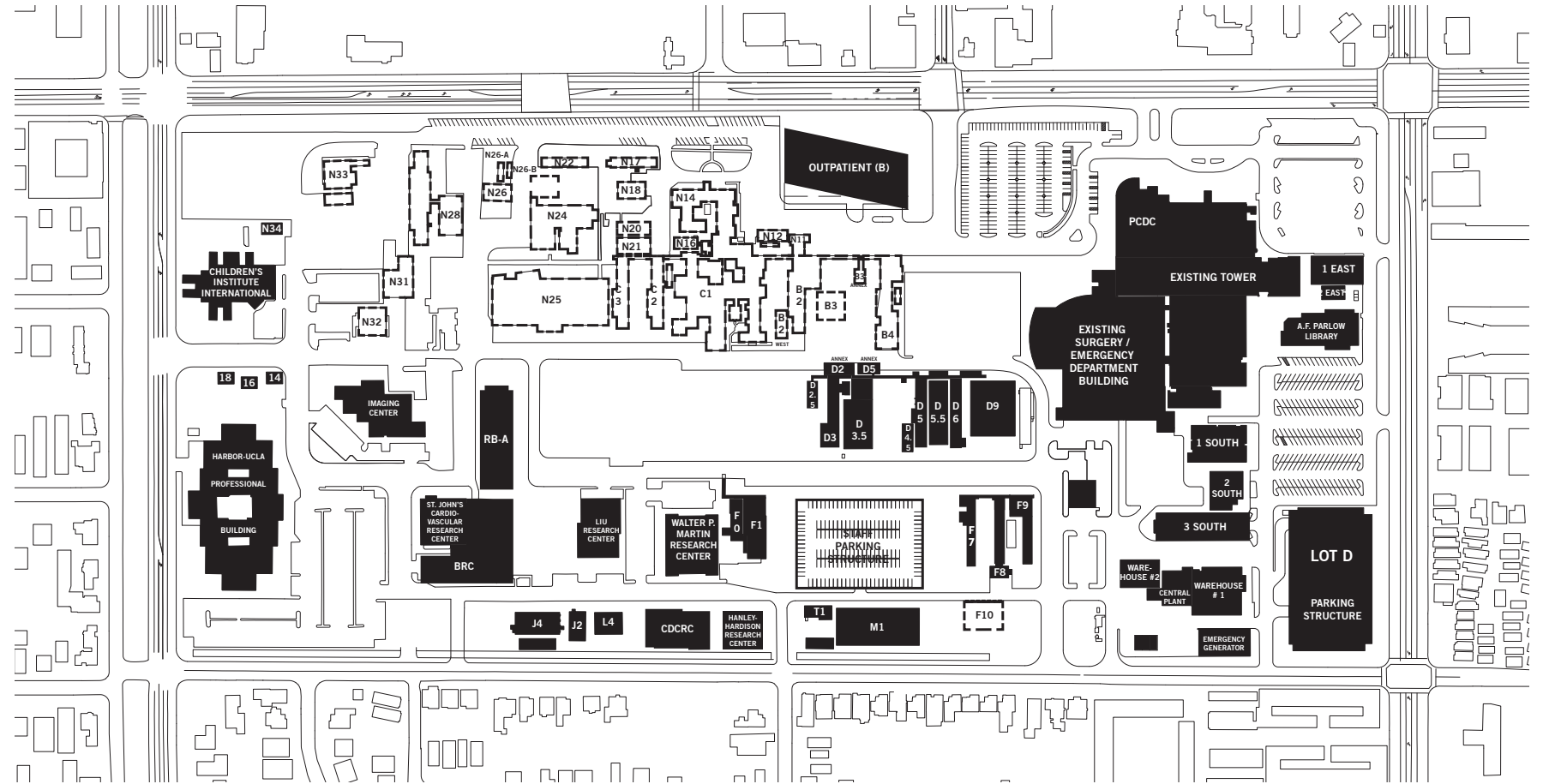
- Building
- Building Under Construction
- LA BioMed Building under construction
- Building to be demolished



PHASE 03

DEMOLISH





- The remaining LA BioMed buildings in the New Outpatient Zone are demolished and their program is relocated into the newly constructed LA BioMed RB-A, BRC, and CDCRC
- The remaining medical clinics in the new Outpatient Zone are demolished and their program is relocated into the new Outpatient Building B
- Quality Assessment Resource Management is demolished and relocated to accommodate the new Central Plant.

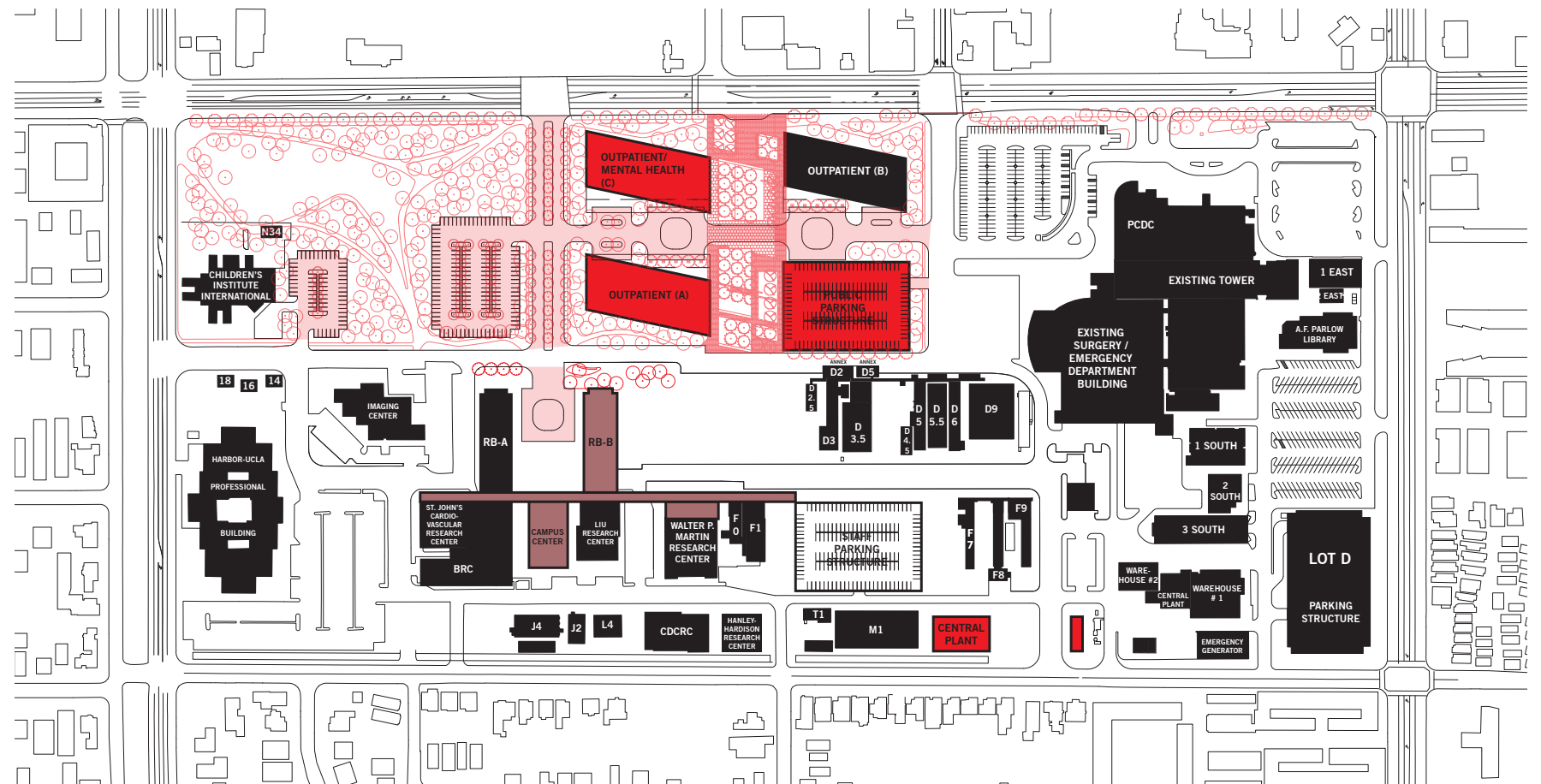


BUILD

- Outpatient Building A and C are constructed to complete the Outpatient Zone on the north end of the campus
- The new public Parking Structure is constructed south of the new Outpatient Building B to meet the anticipated demand of the remaining Outpatient Buildings A and C
- The Outpatient Zone entry plaza and new west entrance off of Carson Street are constructed and integrated into the existing vehicular circulation.
- Half of the New Central Plant and Cooling Towers are constructed to meet the demand of the new outpatient buildings
- Carson Streetscape and sidewalk improvements and northern half of the central garden spine complete the Outpatient Building Area.
- West Carson Entry Drive street trees and median are planted
- Northwest park area begins and serves as a staging area for relocated trees during construction
- New infrastructure to support Outpatient A, B and C within the new circulation roadways and parking areas proposed. Includes West Entrance and area between Outpatient. Connect to existing water system just east of Main Entry Drive.

LEGEND

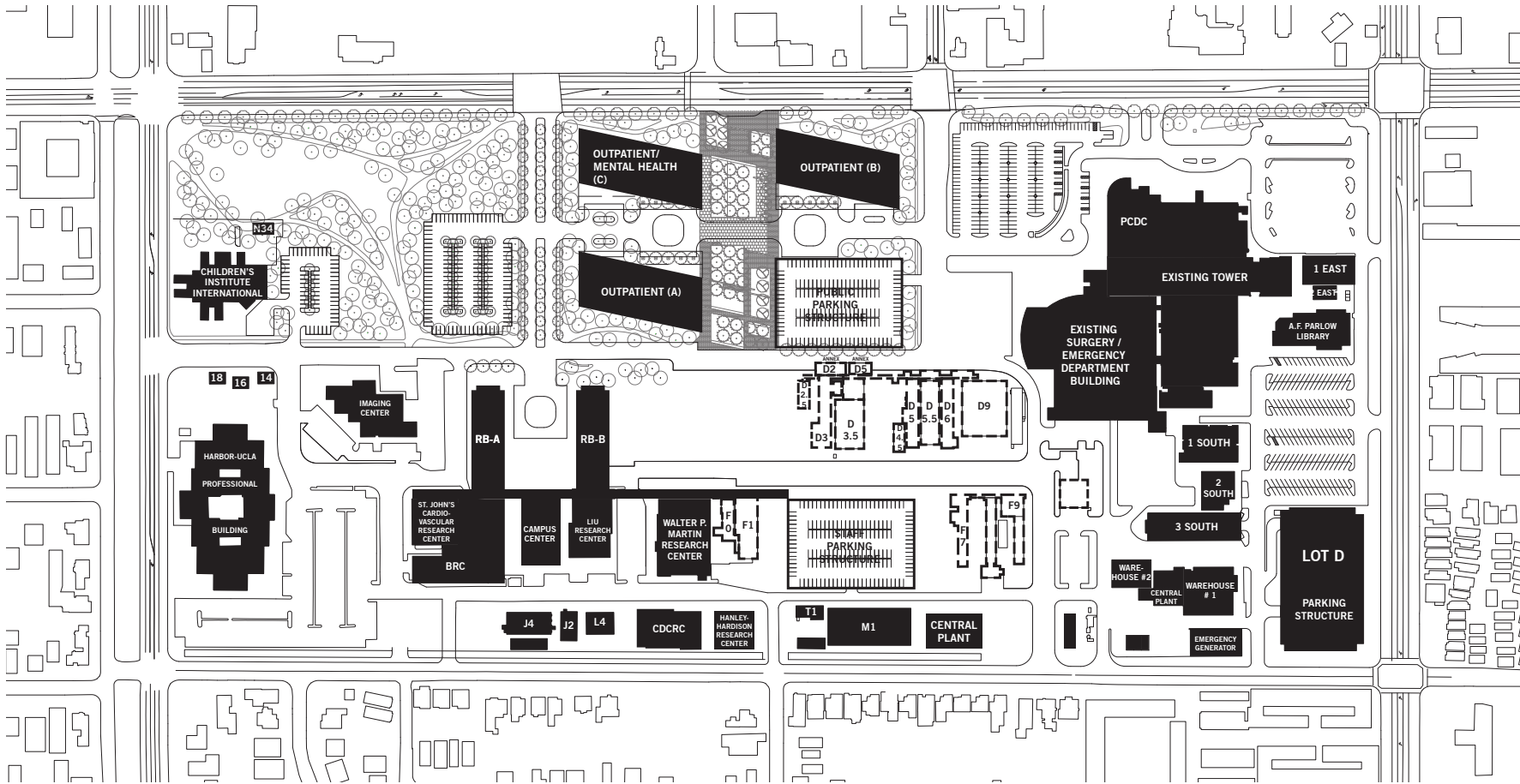
-  Building
 Building Under Construction
 LA BioMed Building under construction
 Building to be demolished



PHASE 04

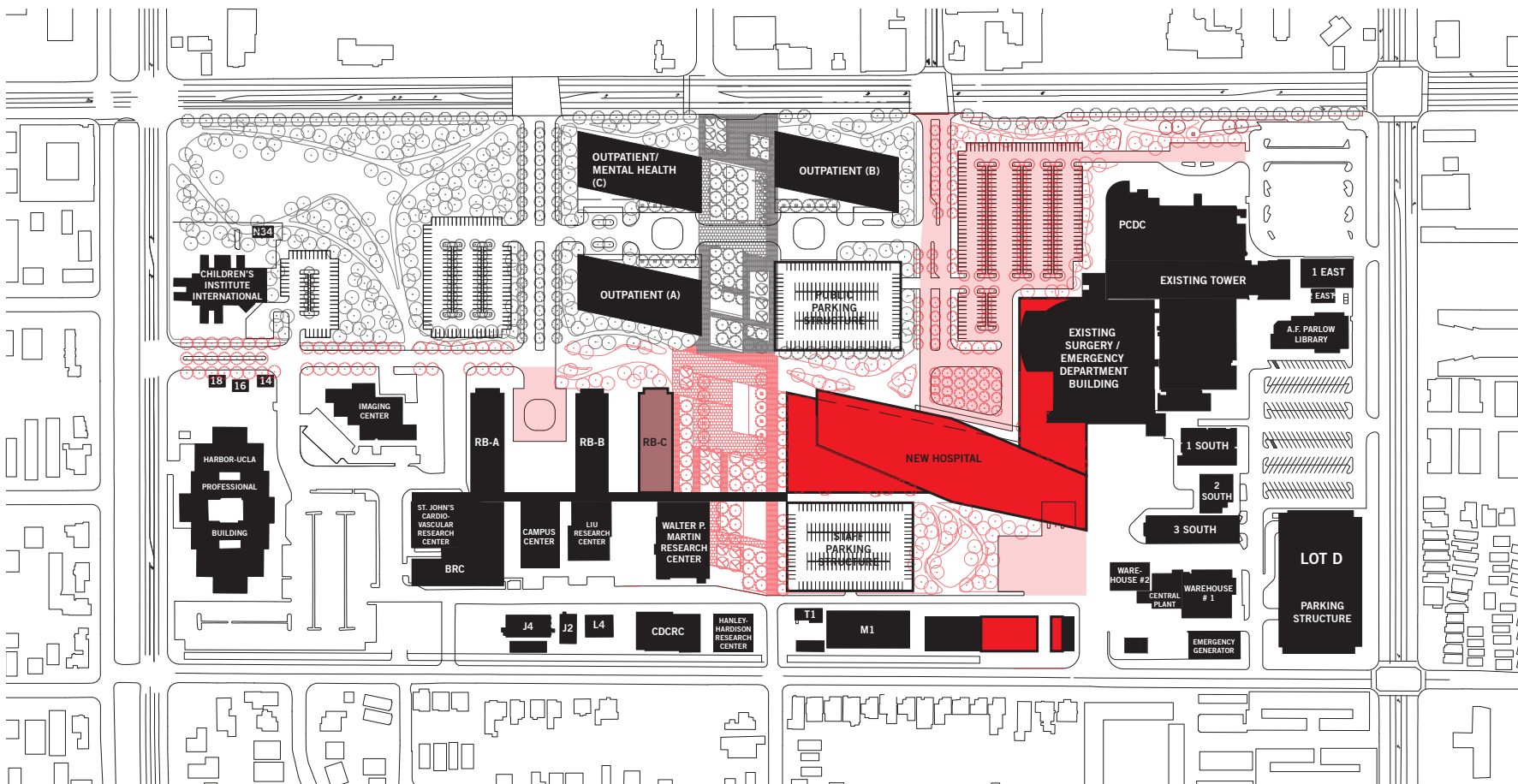
DEMOLISH

- The remaining old LA BioMed and old Outpatient Buildings can be demolished and program can be relocated to completed LA BioMed buildings RB-A, RB-B; and Outpatient A,B, or C respectively as needed
- Vacant land to the northwest of the site can be used as interim staff/public parking as needed.



BUILD

- The Hospital Tower is constructed near the center of the site.
- The main entry plaza is re-configured along with the adjacent surface parking lot
- The second half of the new Central Plant and Cooling Towers are constructed to meet the demand of the new hospital towers.
- Remainder infrastructure west of Existing ED Building to support New Hospital and complete the new infrastructure network for buildings of previous phases.
- The final LA BioMed building, RB-C completes the LA BioMed Master Plan.



LEGEND

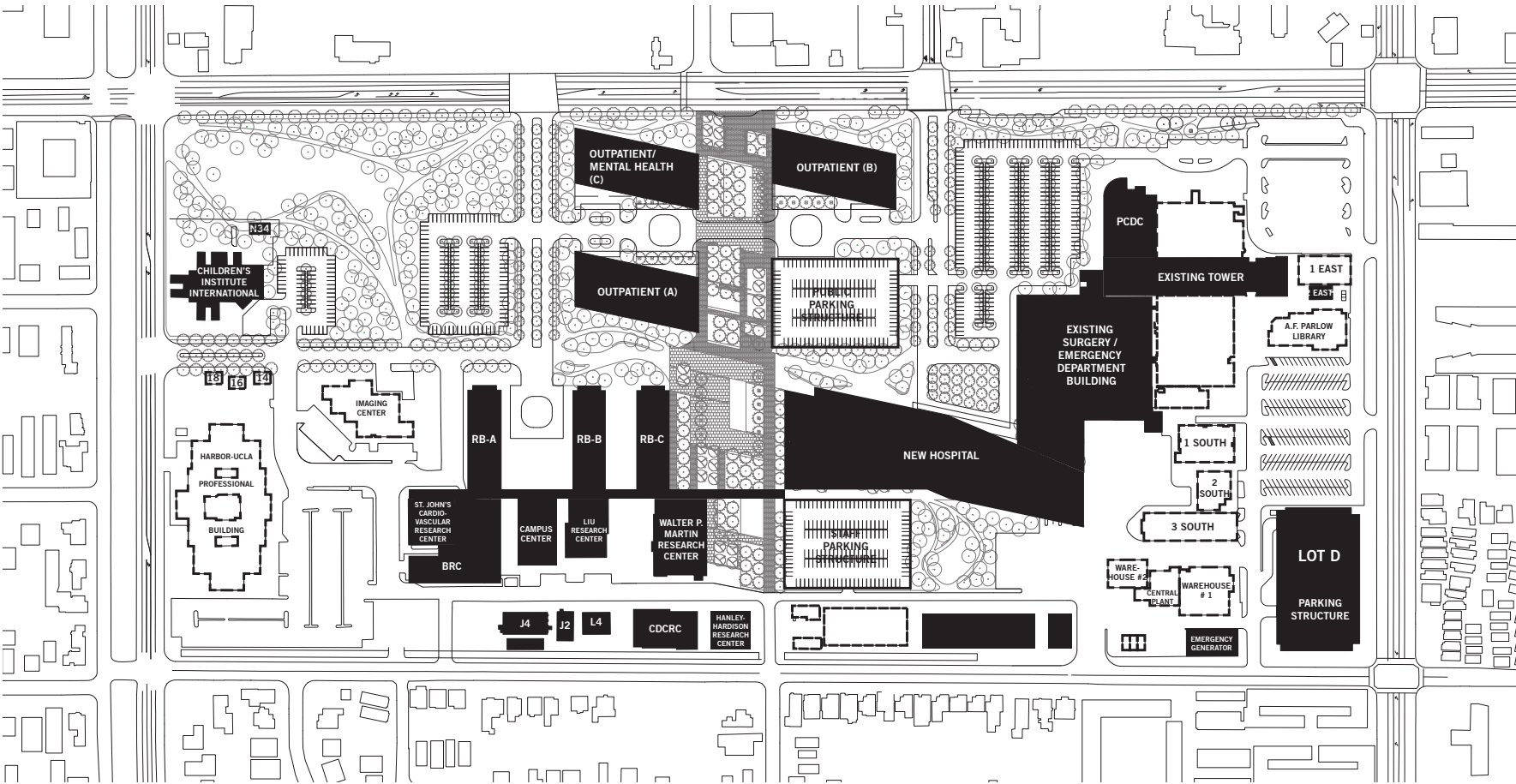
- Building
- Building Under Construction
- LA BioMed Building under construction
- Building to be demolished



PHASE 05

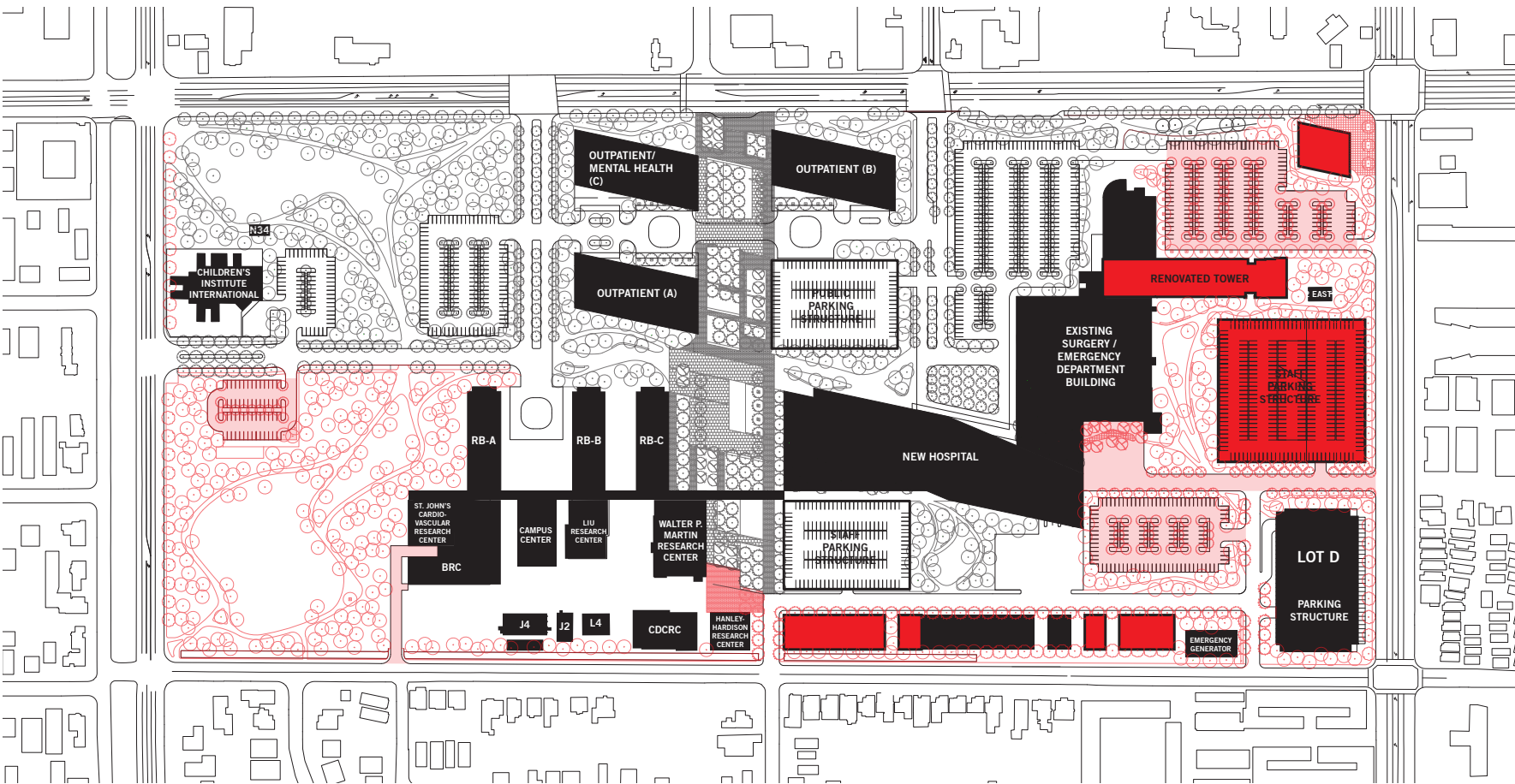
DEMOLISH

- The remaining old hospital support buildings to the east of the site can be decommissioned and demolished after the New Hospital Tower is built and Existing Hospital Tower is remodeled.
- The South Wing attached to the Existing Hospital Tower is demolished to accommodate the new Staff Parking Structure.
- The north wing is demolished after the Existing Hospital Tower is renovated.
- The Parlow Library is demolished and relocated



BUILD

- The final Staff Parking Structure on the east end of the site is constructed along with a staff surface parking lot. Roads in this area of the campus are re-configured
- The Existing Hospital Tower is remodeled floor-by-floor.
- The public parking lot at the north end of the site is re-configured to accommodate a new retail anchor at the corner of Vermont Avenue and Carson Street.
- The final Campus Support buildings are completed at the south-east edge of the site.
- New infrastructure off Vermont Avenue to support the east campus development



LEGEND

- Building
- Building Under Construction
- LA BioMed Building under construction
- Building to be demolished



BUDGET



The concept budget for the master plan includes the following narrative and an itemized cost estimate with supporting documents. The budget is based on the accompanying program and master plan drawings. Future development includes substantive site work improvements, three new Outpatient Buildings, a new Hospital, various new Campus Support Facilities, three new Parking Structures and major remodeling of the existing Tower. All costs included in this budget are based on 2012 construction cost valuation. The master plan cost model is intended to aid with future planning by establishing an order-of-magnitude budget, with both Construction (or “hard”) cost and project “soft” cost, based on the phasing/implementation plans. The budget study identifies both hard and soft project costs separately, defined as follows:

CONSTRUCTION COST

- New Building Construction
- Renovation of Existing Buildings
- Demolition of Existing Buildings
- Site Hardscape, Site Irrigation, Site Lighting and Landscape Work
- Site Infrastructure Work
- Contractor’s Fee
- Contractor’s General Conditions
- Bonding
- Contractor Insurance

SOFT COST

EQUIPMENT

- Group 1 - Fixed Medical Equipment
- Group 2 - Major Moveable Medical Equipment (Requiring Building Services)
- Group 3 - Minor Moveable Med Equipment (Not Requiring Building Services)
- Group 4 - Instruments
- Food Service Equipment
- Furniture, Fixtures and Equipment
- Graphic / Interior and Exterior Signage; Artwork; and Plants
- Nurse Call; and Code Blue Systems
- Intercom/Public Address; Fixed Audio/Visual Systems
- Radio Systems; Dictation Systems; Security/Video Surveillance; and Access Control
- Structured Cabling; Telephone System and Equipment; and Television Monitors
- Desktop and Handheld Devices (Tablets, PC’s, Printers, Copiers, etc)
- Network Electronics including Wireless; Time & Attendance System; Software Applications/Installation/ Licenses; File Servers and Host Computers

DESIGN AND CONSULTANT FEES

- Preconstruction Services by Program Manager, Construction Manager or Contractor
- Architect and Engineer's, including Structural, Mechanical, Electrical, Civil and Landscape Architect
- Equipment Planning, Procurement Consultant and Move Management
- Specialty Consultants, including Food Service, Materials Management, Helicopter, Vertical Transportation, Traffic, Parking, Acoustical, Art, Lighting Designer, etc.

ADMINISTRATIVE COST

- Entitlement Processing Fees
- OSHPD Plan Check and Permit Fee
- Site Survey, Testing, Boring and Geotechnical Reports
- Inspector of Record
- Special Testing and Inspection Services
- Move-In and Start-up Cost
- Commissioning

Cost for capital projects on areas of the campus assigned to LA BioMed is not included in the master plan budget estimates.

The master plan identifies (5) separate phases of work as detailed in the phasing plans. For planning and budgeting purposes, it was assumed the each phase would start upon completion of the preceding phase. Actual phasing, budgeting and implementation would be subject to the County of Los Angeles Board of Supervisors typical capital allocation and project approval process.

Cost escalation is included to the assumed construction midpoints at an annual rate of 5% per year. This is an historical average rate of escalation that would be anticipated over long periods of time (+10 years). However, it should be noted that significant changes in annual rates of escalation may be likely from year-to-year based on many factors that are difficult to predict, and that 5% per year has been selected as a placeholder for long term planning purposes.

PHASE	PHASE TITLE	CONSTRUCTION (HARD COST)					CONSTRUCTION SUB-TOTAL	ESCALATION	SOFT COST (Includes Escalation)	TOTAL \$x1,000
		Building Demolition	New Buildings	Renovated Buildings	Parking	Sitework				
Phase 1	Make Ready	\$ 4,836	\$ -	\$ -	\$ 11,600	\$ 750	\$ 17,186	\$ 1,289	\$ 6,466	\$ 24,941
Phase 2	Outpatient Building B	\$ 6,559	\$ 51,523	\$ -	\$ -	\$ 2,500	\$ 60,582	\$ 9,087	\$ 31,351	\$ 101,020
Phase 3	Outpatient Buildings A & C	\$ 4,421	\$ 111,536	\$ -	\$ 9,580	\$ 19,907	\$ 145,444	\$ 37,816	\$ 82,467	\$ 265,727
Phase 4	Replacement Hospital	\$ 2,431	\$ 692,317	\$ -	\$ -	\$ 17,636	\$ 712,384	\$ 334,820	\$ 523,602	\$ 1,570,806
Phase 5	Existing Tower Renovation	\$ 8,604	\$ 14,576	\$ 105,129	\$ 24,400	\$ 11,650	\$ 164,359	\$ 164,359	\$ 147,923	\$ 476,641
Total Building & Sitework Project Cost		\$ 26,851	\$ 869,952	\$ 105,129	\$ 45,580	\$ 52,443	\$ 1,099,955	\$ 547,371	\$ 791,809	\$ 2,439,135

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